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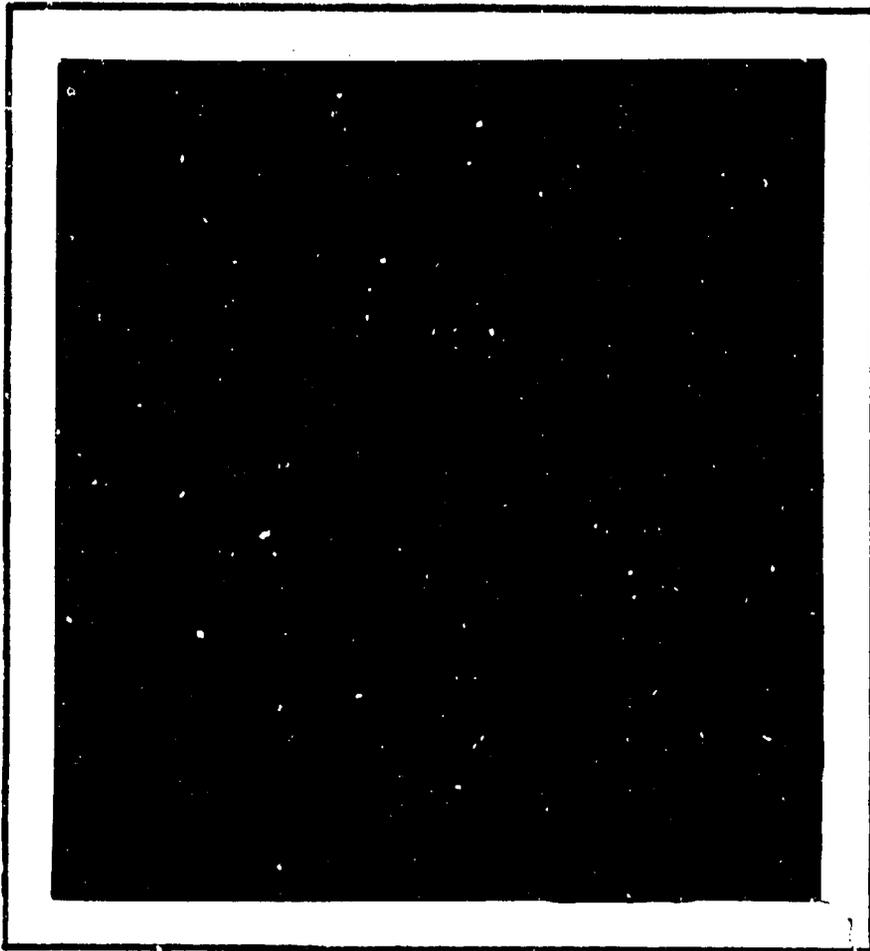
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WORKING DOCUMENT SERIES: BOLIVIA

GENERAL WORKING DOCUMENT #1

AN ANNOTATED BIBLIOGRAPHY
OF AGRICULTURAL DEVELOPMENT
IN BOLIVIA

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INTRODUCTION

Under the terms of Contract No. 12-17-07-5-1651 (ERS-192-B-76), the author has prepared a bibliography of English- and Spanish-language publications (and a few in French, German, and Japanese) on selected aspects of agricultural development in Bolivia. The specific areas covered are credit, marketing, nutrition, technology, income distribution, and employment. Work on this bibliography began in Washington on September 13, 1976. Data collection and bibliographical research in Bolivia were undertaken from October 26 to November 26. The annotations were completed on December 10.

The author is quick to point out that this bibliography, though quite lengthy, is not complete. First of all, a decision was made to include (with a few exceptions) only publications since 1952, the year of the Bolivian revolution. Secondly, many publications which seemed too narrowly agronomic were omitted, even though they might easily have been considered relevant to agricultural technology. Thirdly, time constraints and the law of diminishing returns dictated that the search for documents had to leave some stones unturned. Undoubtedly, some studies which should have appeared in the bibliography were not included, and apologies are offered to their authors.

The form in which the bibliography entries appear is based on guidelines provided in the University of Chicago Manual of Style, twelfth edition, though a number of modifications have been made. For most books and technical reports, the number of pages is indicated. Library locations, with call numbers if available, are given in brackets. The library may be identified by consulting the list of abbreviations.

Most annotations were provided by the compiler of this bibliography, but some were obtained from Dissertation Abstracts (Diss. Abstracts) or from Agrarian Reform in Latin America -- An Annotated Bibliography, published by the Land Tenure Center in 1974 (and identified as LTC, Agr.Ref.L.A.-Bibliog.) Annotations from these sources are in direct quotes, as are those taken directly from studies being annotated.

The following abbreviations are used to indicate subject matter:

Cr	Credit
M	Marketing
N	Nutrition
T	Technology
Y/E	Income Distribution/Employment

A list of other bibliographies appears as an Appendix.

Of the many librarians and others who have helped make this bibliography possible, I would especially like to thank Sra. Irma Aliaga de Vizcarra, director of the library of the Ministerio de Asuntos Campesinos y Agropecuarios in La Paz. Her pioneering work, as reflected in the list of bibliographies in the Appendix, has made this writer's task much easier than it otherwise would have been.

ABBREVIATIONS

CIAT	Centro de Investigaciones Agrícolas Tropicales (Santa Cruz)
CORDECO	Corporación de Desarrollo de Cochabamba
ERS/FDCD	Economic Research Service (USDA), Foreign Demand and Competition Division
FAR	Foreign Affairs Research Documentation Center, U.S. Dept. of State
GWU	George Washington University
IICA	Instituto Interamericano de Ciencias Agrícolas
INC	Instituto Nacional de Colonización
LTC	Land Tenure Center (University of Wisconsin--Madison)
MACA	Ministerio de Asuntos Campesinos y Agropecuarios
MACA/RDD	Rural Development Division, USAID/La Paz, located in MACA
MBAT	Misión Británica en Agricultura Tropical, now headquartered in CIAT
MPS-SP	Ministerio de Previsión Social y Salud Pública
NAL	National Agricultural Library, U.S. Department of Agriculture, Washington
OAS	Organization of American States
SAIG	Sector Analysis Internalization Group, Foreign Development Division, Economic Research Service, U.S. Department of Agriculture
UMSS-FCA	Universidad Mayor de San Simón (Cochabamba)--Facultad de Ciencias Agrícolas
UMSS-IESE	Universidad Mayor de San Simón (Cochabamba)--Instituto de Estudios Sociales y Económicos

UN/B United Nations Office in Bolivia
U.S. Dept. State United States Department of State
USU Utah State University (Logan) [Papers in the USU Series
are available in the MACA library]

1. ADELMAN, Irma, and MORRIS, Cynthia Taft. "An Anatomy of Income Distribution Patterns in Developing Countries." Development Digest 9, No. 4 (October 1971): 24-27. Y/E

Comparative data on income distribution for LDCs, including Bolivia.
2. AHLFELD, Federico E. Geografía física de Bolivia. La Paz: Editorial Los Amigos del Libro, 1969. Pp. 239. [MACA: GB153 A5g] T

A general text.
3. AKIYAMA H., Angel. "Situación de la ganadería en el trópico húmedo y semi-húmedo de Bolivia." In Informe de la Reunión Técnica de Programación sobre Desarrollo Ganadero del Trópico Húmedo Americano. Informe de Conferencias, Cursos y Reuniones No. 30. Guayaquil, Ecuador: IICA, December 10-14, 1973. Pp. III-A, 1-5. [NAL: S401 156] Cr M T

Livestock numbers are low; management is poor; and yields are low. Marketing is primitive. A suitable long-term credit program needs to be established, especially for small- and medium-size producers.
4. ALANDIA BORJA, Segundo. "Análisis e impactos económicos de la investigación agrícola en Bolivia." In Informe del Seminario Regional sobre Aspectos Socio-Económicos de la Investigación Agrícola. Maracay, Venezuela: IICA, April 10-13, 1973. Pp. D-1-2, 1-7. [NAL: S542 V4 S42 1973] T
5. ALBÓ, Javier. "Aspectos sociales de la nutrición: Valor social de los alimentos." In Taller sobre políticas de alimentación y nutrición. La Paz, 1976. [MACA: TX551 B6 T3; missing] N
6. ----. "Situación presente de migraciones en Bolivia." La Paz(?): Centro de Investigaciones y Promociones del Campesinado, 1974. Y/E
7. ----. "Ucureña en el Contexto de la Revolución Nacional de Bolivia, 1936-1952-1968." Ithaca, New York: School of Industrial and Labor Relations, Cornell University, 1968. Mimeographed. T Y/E
8. ALBORTA VELASCO, Guillermo. El flagelo de la inflación monetaria en Bolivia, país monoprodutor. 2nd ed. Madrid: Editorial Románica, 1971. Pp. 467. [NAL: HG824 A4 1971] T

Attributes agricultural stagnation to government inattention. Without assistance, it is argued, Bolivia's products cannot compete in world markets. Highly critical of the government's wheat policy, which in effect subsidizes imports. Farm improvements are discouraged by tariffs on imported inputs as well as domestic taxes.

9. ALDUNATE GUILLÉN, Antonio Alfredo. "Bolivia debe y puede abastecerse de trigo con producción nacional a costos competitivos." Tesis de Grado (Economía), UMSS, Cochabamba, 1971. Pp. 63. [UMSS-IESE] M T Y/E
- Stagnation of wheat production is attributed to the U.S. wheat surplus and the advantage to millers of importing foreign wheat and, especially, flour. The desirability of national self-sufficiency in wheat is regarded as a foregone conclusion. Benefits of a national wheat program based on new seeds and modern inputs are exaggerated, largely because the results achievable with the new seeds are too optimistic.
10. ALEXANDER, Robert J. "Bolivia: The National Revolution." Ch. 16 of Political Systems of Latin America, 2nd ed., ed. Martin C. NEEDLER. New York: Van Nostrand, Reinhold, 1970. [U.S. Dept. State: F1414 N4 1970] M
- "Opinion in Bolivia and among foreigners who have studied the problem is divided as to whether the new peasant proprietors are growing more for their own use than they did before they received the land. What is certain is that less is being produced for the cities" [ALEXANDER]. A significant educational effort is necessary to convince small farmers of the advantages of commercial agriculture.
11. ----. The Bolivian National Revolution. New Brunswick: Rutgers University Press, 1958. [U.S. Dept. State: F3326 A6] Cr M T Y/E
- Implementation of the agrarian reform has been slow and subject to abuses by both government and campesinos. Credit and technical assistance have been insufficient.
12. ----. "Nature and Progress of Agrarian Reform in Latin America." Journal of Economic History 23 (December 1963): 559-573. T Y/E
- Argues that the agrarian reform law of 1953 was enacted not so much because of campesino pressure but rather because of the MNR's commitment to agrarian reform.
13. ALLEN, Jeffrey H. "National Pricing Policy in Bolivia." Paper for Agricultural Economics 685, [Institution not given]. April 23, 1974. Pp. 21. [Available in MACA/RDD] M
- Pricing policy lacks vision and coordination. It acts as a constraint on development by discouraging production.
14. ALLRED, Chase. Weed Control I and II. USU Series 5/75 and 6/75. La Paz, 1974. Pp. 4 and 4. T
- Brief descriptions of how to do it.

15. ALLRED, J.R. "New Promise for the High Plains." War on Hunger 9, No. 9 (September 1975): 8-12. T
- Altiplano agriculture has traditionally emphasized grazing, but only on a subsistence basis. Research by Utah State University specialists, under contract to USAID, suggests that improved management and other technological changes could increase incomes and result in the production of an exportable surplus of wool.
16. ALLRED, Keith. Alfalfa Production on the Bolivian Altiplano. USU Series 4/72. La Paz, July 1971. Pp. 20. T
- Discusses conditions under which alfalfa production could be expanded; presents results of experiments. "Alfalfa is the most nutritious and productive perennial legume for the Altiplano when planted on fertile, irrigated soils. It is recommended for use as hay, silage, and green feeding. It should not be grazed by sheep or cattle while green and growing because of danger of bloat" [ALLRED].
17. ----. Forage Research and Testing Results from the High Plains of Bolivia. USU Series 6/71. La Paz, 1971. Pp. 41. T
- Summarizes results of the following programs: (1) seed importation, (2) testing of forage species and varieties, (3) determining responses of the best forages to fertilizer and irrigation, (4) studying seed production potential of promising forages, and (5) determining the effects of irrigation and fertilizer on quinoa, broad beans, potatoes, and barley.
18. ----. Red Clover Production on the Bolivian Altiplano. USU Series 5/72. La Paz, July 1971. Pp. 15. T
- Discusses conditions under which red clover production could be expanded; presents results of experiments.
19. ----. Report of Forage Specialist Activities, July 1, 1968-June 30, 1970. USU Series 6/70. La Paz, 1970. Pp. 52. T
- Contains results of tests on forages and other crops.
20. ----. Report on Forage Program in Bolivia. USU Series 9/69. La Paz, June 1969. Pp. 6 + Annexes. T
- Report of research results.
21. ----. Response of Selected Crops to the Climatic and Agronomic Conditions of the Bolivian Altiplano. USU Series 8/72. La Paz, August 1971. Pp. 93. T
- Research results for forage crops, quinoa, broad beans, potatoes, and barley.

22. ----. Seed Production Program for Bolivia. USU Series 20/68. La Paz, March 1968. Pp. 30. T
 Cost-of-production tables.
23. ----. Tall Fescue Production in Bolivia. USU Series 6/72. La Paz, September 1971. Pp. 19. T
 Tall fescue is one of the most promising grasses that can be introduced in the Altiplano.
24. ----. Weeping Lovegrass Production on the Bolivian Altiplano. USU Series 7/72. La Paz, July 1971. Pp. 20. T
 Recommends this forage grass on the poorer soils, especially in the central and southern Altiplano, for pasture, hay, and erosion control.
25. ----, and DANKER, Marshall. Gregorio's Secret: Pasture on the Altiplano. USU Series 3/72. La Paz, July 1971. Pp. 17. T
 Farmer's bulletin explaining that the secret to fatter sheep is hay and silage.
26. ALVARADO, Julio. El balance de la experiencia socialista, 1952-1964: Ensayo sobre la política económica contemporánea de Bolivia. Madrid: Artes Gráficas y Ediciones, S.A., 1969. Pp. 462. T
 [NAL: HC182 A595]
 Concerned mainly with mining. The brief sections on agriculture present data in a disorganized manner, and the author's proposals are vague.
27. ALZERRECA ANGELO, H. "Evaluación de la pradera nativa en el altiplano central de Bolivia." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1975. Pp. 79. [UMSS-FCA] T
28. AMADOR RICO, Freddy G. "Ensayo de comprobación y respuesta de 622 variedades de trigo a dos niveles de fertilizantes nitrogenados." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1967. Pp. 106. [UMSS-FCA] T
 Tests were conducted with urea (50 and 25 kg./ha.) at the "La Tamborada" experiment station. Use of 50-0-0 resulted in the highest yields and greatest profits. Additional testing with 9 varieties was recommended. The author also recommends crop rotation, mechanization, careful choice of planting time, and use of herbicides.
29. AMBROGGI, R. "Hidrología del altiplano de Bolivia." Informe Preliminar. La Paz: Naciones Unidas, November 1965. 11 l. [MACA: GB1090 A7 A5h] T

30. American Technical Assistance Corporation (ATAC). Evaluation of AID and AID Contractor Programs in Promoting Cooperatives in Latin America: Field Trip Background Report on Bolivia. Washington, D.C., June 1971. Pp. 60. [AID Ref. No. BL334 A512] Cr M
- Two AID loans to the Credit Union Federation, totalling \$365,000, have been poorly utilized. There has been inadequate supervision of farmers, and the government has not provided the necessary supporting services in technical assistance, marketing, and price policy. "The utility of the multi-purpose farm coop has not yet been established in this country; indeed, there is little information on the present-day operations and problems of such coops. No federation of farm coops exists" [ATAC]. A projected AID loan of \$8.0 million, mainly for marketing credit, is unlikely to be used much by coops.
31. AMUNATEGUI, Gregorio; ESTAY, Jorge; and CONCHA, Carlos. "Impresiones del viaje a Bolivia." In Apuntes sobre reforma agraria. Santiago, Chile: Asociación Profesional Interamericana de Reforma Agraria, 1963. Pp. 10-31. [LTC Files LA 3 A68] Y/E
32. AMURRIO ROCHA, José. "Estudio de una fertilización racional de los suelos de Cochabamba con relación a los principales cultivos." In Informe Anual, 1965, Estación Experimental Agrícola "La Tamborada," Cochabamba. [MACA: S189 Ex72 R2; missing] T
33. ANAYA, Ricardo. "Desarrollo agroeconómico del valle de Cochabamba." Revista de la Facultad de Ciencias Económicas (Cochabamba) 5 (June 1964): 9-15. [MACA: HC181 C6r] M T Y/E
- Speech on general themes by the rector, Universidad Mayor de San Simón. Discusses the university's interest in agricultural research, argues for additional agrarian reform measures, and objects to price policies discriminating against agriculture.
34. ANDIA CASTELO, Róger L. "Ensayos de fertilización en el cultivo de maíz en el valle alto de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1968. Pp. 68. [UMSS-FCA] T
- Yields respond favorably to fertilizer in Calavario Huasa (Arani) and Mamanaca (Tarata) but not in San Benito (Punata). Use of nitrogen alone (ammonium nitrosulfate, rather than urea), gives the best results (50 kg./ha. in Calavario Huasa and 100 in Mamanaca). Response is best when soils are humid. Use of the recommended amounts of fertilizer (with appropriate varieties) results in the highest profits.
35. ANDIA LAZARTE, E.F. "Cultivo del trigo con aplicación de fertilizantes en la zona de los valles de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1966. Pp. 102. [UMSS-FCA] T

36. AÑEZ CAMPOS, Ramiro. Temas agropecuarios. Santa Cruz: Imprenta y Papelería Emilia, 1958. Pp. 60. [MACA: S493 A5] Cr T
- A miscellany of 26 short articles by an agronomist-veterinarian.
37. ANTEZANA, Fernando. "The 'Braceros' of Bolivia: The Human Tragedy of Thousands of Bolivian Migrant Workers in Argentina." In Internal Migration in Latin America. Sponsored by Iglesia y Sociedad en América Latina. Geneva: Secretariat for Migration, World Council of Churches, 1969. Pp. 81-96, with a statistical supplement on pp. 97-100. [NAL: HB2410.5 S9] Y/E
- Description of living and working conditions; estimates of the number of Bolivian migrants in Argentina. The author, head of a Counselling Center Project for braceros, argues that 490,000 Bolivians live in villas miserias surrounding Argentine cities; 196,000 are braceros migrating seasonally to Argentina for the cultivation and harvesting of sugar, tobacco, timber, etc.; and 98,000 are golondrinas who migrate seasonally within Argentina.
38. ANTEZANA E., Luís. "Los antecedentes históricos y la reforma agraria boliviana." In Reformas agrarias en América Latina: El problema socio-económico. Buenos Aires: Juárez Editor, S.A., 1970. Pp. 225-309. [LTC: HD320.5 R22] Y/E
- "Historical account of how the Bolivian Indians lost their lands in the nineteenth century, and a description of subsequent efforts at agrarian reform, especially after the 1952 revolution" [LTC, Agr.Ref.L.A.-Bibliog.].
39. ----. "Las organizaciones sindicales campesinas y la reforma agraria boliviana." Reproducción No. 4. La Paz: Servicio Nacional de Reforma Agraria, 1970. Pp. 30. [LTC microfilm] T Y/E
- "The author argues that the Bolivian campesino, by forcing the government to send its best troops into the countryside to quell uprisings, thus weakening the State's power in the urban centers, played an important role in the revolution. Describes the growth of unions and emphasizes their role in breaking the feudal agrarian system in Bolivia" [LTC, Agr.Ref.L.A.-Bibliog.].
40. ----. El problema del minifundio en Bolivia. La Paz: n. publ., 1971. Pp. 32. [MACA: HD1306 B6 A5p] T Y/E
- Argues that small plots are uneconomic, but proposed solutions, including more rapid industrialization, are rather vague. No data.
41. ----. "La reforma agraria campesina en Bolivia (1956-1960)." Revista Mexicana de Sociología 31 (April-June 1969): 245-321. M T Y/E
- "Presents a detailed history of agrarian conditions and the re-

lation between these and political processes at the national level, beginning at mid-nineteenth century. Discusses only briefly the revolution and agrarian reform of the early 1950s. An appendix on agricultural production over the period 1952-1962 and a bibliography are presented. Data are from Bolivia's Ministry of Agriculture and other national sources" [LTC, Agr. Ref.L.A.-Bibliog.].

42. ----. Resultados de la reforma agraria en Bolivia. Cochabamba: F.O. Cuenca Sucs., 1955. M T Y/E

43. ----, and ROMERO B., Hugo. Historia de los sindicatos campesinos: Un proceso de integración nacional. La Paz: Departamento de Investigaciones Sociales, Servicio Nacional de Reforma Agraria, May, 1973. Pp. 374. [MACA: HD6606 A5r] T Y/E

An earlier version [available from LTC: Files Bo69 A58] was described as "the most complete and authoritative treatment of the subject" [LTC, Agr. Ref.L.A.-Bibliog.]. Emphasizes pre-1952 events and developments in the 1950s; discussion of economic matters is limited.

44. ANTEZANA PARDO, Octavio. "La palmera africana o aceitera: Una oleagínea que promete." In Jornadas Agronómicas, Segundas, Noviembre 29-Diciembre 3, 1967. Informe 21. Typewritten. La Paz: Ministerio de Agricultura, 1967. [MACA: S189 J6; missing]. T

45. ANTEZANA TERRAZAS, Oscar Juan. "Influencia de la fertilización en condiciones de riego y secano en el rendimiento de la papa." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1974. Pp. 60. [UMSS-FCA] T Y/E

Although N, P, and K were in the soil in relatively large quantities, potatoes were still responsive to fertilizer applications. Highest yields were obtained for plantings on October 20 with irrigation; the October 20 non-irrigation yield exceeded the September 20 non-irrigation yield. Highest net income per hectare was obtained with 80-80-80 fertilizer.

46. ANTHONY, K.R.M. Cotton Development in Bolivia. London: Cotton Research Corp., 1971. Pp. 11. [MACA: SB251 B6 A5c] T

47. ANZALDO GÁLVEZ, F. "El crédito agrícola supervisado: Un estudio evaluativo aplicado." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1970. Pp. 62. [UMSS-FCA] Cr

48. ARA, Hugo. "Rentabilidad de cultivos alternativos en el Chapare." Tesis de Grado (Economía), UMSS, Cochabamba, n.d. Pp. 110 + Annexes. [UMSS-IESE; missing] T Y/E

Some crops are profitable, especially those used as raw material by industry (e.g., soybeans). But profitability is low for crops destined for direct consumption.

49. ARAMAYO R., Adolfo. Proyecto para el establecimiento de una cabaña de búfalos en el Chapare. La Paz: Instituto Nacional de Colonización, March 1974. Pp. 19. [MACA: SF213 A7p] T
- Recommends introduction of the (Asian) buffalo in parts of the Chapare where wet soils and flooding prevent the introduction of traditional cattle. Can also be used by small farmers in the Beni, Pando, and the northern part of La Paz Department, both for meat and milk and as draft animals.
50. ARCE PEREIRA, Lucio. "Breve informe de los suelos del altiplano central." La Paz: SAI, July 1962. 17 l. [MACA: S599 B6 A76] T
- Exploratory report designed to serve as a basis for more detailed studies.
51. ----. El Chapare: Capacidad agrológica y recursos naturales. La Paz: Ministerio de Agricultura, Servicio Agrícola Interamericano, 1964. Pp. 253. [Available in MACA/RDD] T Y/E
- Describes natural resources and soils by sub-zones. Briefly describes the colonization program.
52. ----. Estudio exploratorio del Río Mamoré y sus afluentes. La Paz: SAI, 1963. Pp. 172+. [Available in MACA/RDD] M T
- Agriculture is on a subsistence basis, plagued by lack of transport, instability of prices paid to producers (who are exploited by rescatistas), crop diseases and plagues, and flooding. Colonies based on livestock and extensive agriculture could be successful.
53. ----. "Informe del estudio de los suelos de la estación de mejoramiento ganadero Trinidad-Beni." La Paz: SAI, August 1961. 16 l. [MACA: S599 B6 A7i] T
- Basic soil study of the site.
54. ----. Informe del reconocimiento detallado de los suelos existentes en las márgenes de los ríos Cotacajes y Alto Beni, denominado "Proyecto Alto Beni." 2nd ed. La Paz: SAI, October 1965. Pp. 89. [Available in MACA/RDD] M T
- Concludes that soils are excellent for supporting intensive subtropical and tropical agriculture. Development of the Alto Beni requires an orderly planning of penetration and farm-to-market roads, and parcelization of the land in lots of about 15 hectares.
55. ----. Resumen del proyecto de regadío Abapó-Izozog. La Paz: Ministerio de Economía Nacional, November 1966. Pp. 32. [MACA: S613 A7r] M T
- Project was designed mainly to stimulate import substitution in

- wheat, cotton, vegetable oils, and meat. Export possibilities also exist, and export surplus can be moved by rail to Buenos Aires. Emphasis is on mechanized farming for wheat and other crops. A total of 350,000 hectares will be irrigated. M T
56. ---- et al. Report on the Soils of Bolivia. World Soil Resources Reports, No. 10. Rome: Food and Agriculture Organization, January 1964. Pp. 67. T
57. ARCE VARGAS, Mario. "Informe de la colonización actual en Bolivia." La Paz: Ministerio de Asuntos Campesinos, 1962. 19 l. [MACA: HD492 A7] T
- Argues that the government should restructure existing colonies in Santa Cruz and, especially, Chapare, before opening up new areas. Recommends a host of government activities including farm-to-market roads, clinics and schools, and technical assistance. Contains a list of colonies in the two zones, with area, number of families, and date of establishment. Briefly describes agricultural practices in each colony.
58. ARDAYA, Guido. Diagnóstico de la producción del trigo en el Departamento de Santa Cruz. Santa Cruz: n. publ., n.d. [C.00.PP.] T
59. ARELLANO TERCEROS, Hugo. "Efecto de población de plantas en los rendimientos, área foliar y compuestos bromatológicos de tres variedades de maíz (zea maya L.), Santa Cruz." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1976. Pp. 58. [UMSS-FCA] T
60. ARISPE, C.E., and URIOSTE F. de C., Miguel. Algunas estimaciones econométricas para el cultivo de la papa en el altiplano paceño. Documento de Trabajo No. 07/75. La Paz: Instituto de Investigaciones Socioeconómicas, Universidad Católica Boliviana, 1975. T Y/E
61. ARTEAGA, Freddy; MANTILLA, Julio; and LeBARON, Allen. "Informe sobre índices de precios al productor para la Comisión de Precios y Salarios." La Paz, September 1976. [MACA/RDD] M
62. ARTEAGA HAYASHIDA, F. "Estudio preliminar sobre producción e industrialización de fibras de cabuya en Bolivia." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1967. Pp. 114. [UMSS-FCA] T
63. ----. "Soya, algodón, madera, goma y castaña." Typewritten. La Paz: MACA, 1974. Pp. irregular. [MACA: HD1866 A7s] T
- Summary information on production, yields, growing seasons, and marketing. Only in rare cases can the use of fire be justified in the Altiplano and Valles. In the tropics, though, it can be justified if its use is properly controlled.

64. Asociación de Consultores, Ltda. Diagnóstico Agropecuario de Santa Cruz. 5 vols. Santa Cruz: Comité Departamental de Obras Públicas, 1975. [CAIG] Cr M T Y/E
- Detailed, comprehensive survey of the agricultural sector in the Department of Santa Cruz. A valuable source.
65. AYALA, J.; MENDOZA, G.; and URQUIDI, W. "Estudio de la industria avícola en Bolivia y las posibilidades de su desarrollo." La Paz: SAI, September 1965. 36 l. [MACA: SF488 B6 A9e] M T
- National production of balanced feed represents only 10% of the needs of commercial producers. Some 500,000 chicks have to be imported annually. Credit, research, and technical assistance are necessary to prevent these outflows of foreign exchange. A plant for processing balanced feed should be established.
66. AYALA MERCADO, Manuel. El crédito agrícola y el plan de desarrollo agropecuario en Bolivia. La Paz: Talleres Gráficos Bolivianos, 1963. Pp. 128. Cr
- " . . . Summarizes the most fundamental aspects of the agrarian reform at the level of the firm, and details the evolution of supervised credit programs" [LTC, Agr.Ref.L.A.-Bibliog.].
67. AYALA Z., Alfredo. Geografía económica general y de Bolivia. La Paz: Editorial Don Bosco, 1970. Pp. 204. [NAL: HC182 A9] T Y/E
- A descriptive text.
68. AYAVIRI ARANA, César. Panorama de un proceso de reforma agraria: Participación del campesinado en el caso boliviano. La Paz: Servicio Nacional de Reforma Agraria, 1972. [LTC File's Bo 3 A91; MACA: HD1306 B6 A9p] T Y/E
- "A somewhat misleading title. Peasant participation is discussed briefly, but prereform land tenure, the general economic situation, agricultural growth, rural unemployment, and the results of land reform receive more attention. A concluding section discusses the organization and operation of 'peasant community enterprises' " [LTC, Agr.Ref.L.A.-Bibliog.].
69. BACON, Charles A. "End-of-Tour Report, [February 6, 1966-February 28, 1970]." Airgram No. TOAID A-148. La Paz: USAID, March 25, 1970. Pp. 14. [AID Ref. No. BL332.71 B128] Cr
- Report of an auditor advisor to the Banco Agrícola de Bolivia, listing accomplishments and providing a number of detailed recommendations.

70. BALDERRAMA, Jesús, and RUIZ M., Oswaldo. Análisis agropecuario y económico de la zona Alto Beni y requerimientos para un programa fitosanitaria en cacao. La Paz: INC, January 1974. Pp. 19 + Tables. [INC] T Y/E
- Investment in disease control has an estimated benefit-cost ratio of 2:1.
71. BALDERRAMA GONZALES, Adalid. Nuestro agro y sus problemas. Cochabamba: Imprenta Universitaria, 1953. Pp. 246. [MACA: HD492 B3, missing; LTC: HD483 B3] M T Y/E
- "This thesis summarizes the history of Bolivian agriculture . . . and considers a range of problems of the postwar, prereform period: colonization, productivity, the 'Indian problem,' and the future of the Bolivian campesino" [LTC, Agr.Ref.L.A.-Bibliog.].
72. ----. La reforma agraria y la experiencia boliviana. La Paz, 1960. [MACA: HD492 B3, missing; LTC HD486 B3] T Y/E
- "Collection of articles on various aspects of agrarian reform, written in 1958 and 1959 by a member of the Movimiento Nacionalista Revolucionario (MNR). No new data, nor drastic recommendations, but a vision of how the reform was seen by leaders of the governing party" [LTC, Agr.Ref.L.A.-Bibliog.].
73. BALLANTYNE, A.O. et al. Café (caffea arábica): Una guía para el cultivo en Bolivia. Boletín Técnico No. 38. Santa Cruz: MACA and MBAT, Estación Experimental de Saavedra, 1971. T
74. BALLARD, J. Clark. "End-of-Tour Report, [August 20, 1965-September 25, 1968]." USU Series 4/69. La Paz, September 1968. Pp. 18. [AID Ref. No. BL630.715 B189] M T
- Report of an agricultural extension advisor. Accomplishments include improvements in wool production and marketing and the introduction of new wheat varieties.
75. ----; McALLISTER, D.R.; and SEJAS, Jaime. Survey of the Fruit Culture Potential in the Cochabamba Valley. USU Series 1/65. La Paz, 1965. Pp. 9. M T
- Climate, soil, and water availability would permit a substantial expansion of fruit production. Adequate markets, though, must be available.
76. ---- et al. "Resource Development in the Bolivian Altiplano." Utah Farm and Home Science 27 (June 1966): 72-77, 84. T
- Brief summary by Utah State University advisors of the agricultural resources and potential of the Altiplano.

77. BALLON, J.E. "Efecto de la densidad de población sobre el rendimiento de algodón." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1975. Pp. 66. [UMSS-FCA] T
78. Banco Agrícola de Bolivia. La ganadería boliviana: Situación de la comercialización de la carne y posibilidades para su desarrollo. La Paz, 1970. [SAIG; FDCD] M
- Detailed discussion of marketing infrastructure and prospects for internal and external marketing. Quality and transport improvements are necessary to enter export markets.
79. ----. Memoria. Annual since 1944. [MACA] Cr
- Contains data on loan amounts; number of loans; and loans by type of credit line, regional office, Department, type of borrower, and commodity.
80. BÄNZIGER, Konrad. "La producción agrícola en la economía boliviana." La Paz: FAO, 1956. Pp. 7. [UN/B] M
- Low prices to producers discourage production.
81. BARBERO, Guiseppe. "Realizaciones y problemas de la reforma agraria en Bolivia," Trimestre Económico 28 (October-December 1961): 612-650. M T Y/E
- "Discussion of progress and problems of agrarian reform in various regions of Bolivia. Recommendations are of a technical nature: streamline the process of granting titles, improve collaboration between agencies, clarify the system of compensation to former landowners, etc." [LTC, Agr.Ref.L.A.-Bibliog.].
82. BARJA BERRIOS, Gover. Análisis de los programas de pastos y forrajes en Bolivia. Boletín Experimental No. 38. La Paz: Ministerio de Agricultura, February 1970. Pp. 11. [MACA: S189 Se6B] T
- Brief summary of research on pasture and forage varieties at the various research stations. No data on comparative yields, costs, etc.
83. ----. "El uso de fuego en los campos." La Paz, 1973. [MACA: S190 R4 41] T
- Indiscriminate burning causes not only loss of trees and vegetation, but also destroys organic matter in the soil, reducing its fertility.

84. ----; ALANDIA BORDA, Segundo; and GANDARILLAS, Humberto. Impacto de la investigación agrícola en el desarrollo económico del país. La Paz: Ministerio de Agricultura, 1969. Pp. 8. [MACA: S189 Ex72 B3i] T
- Places a monetary value on production increases attributed to introduction of new varieties, fertilizer, etc.
85. ----, and CARDOZO, Armando G. Geografía de Bolivia. La Paz: Editorial Los Amigos del Libro, 1971. Pp. 257. [NAL: HD1867 B3] Cr M T Y/E
- A descriptive text, mainly devoted to individual crops and livestock products.
86. BARNES de MARSCHALL, Katherine. La estancia Choquecota: Una comunidad pastoral en Pacajes. La Paz: Servicio Nacional de Reforma Agraria, 1970. 72 l. [LTC Files Bo 84 B17; MACA: HT421 B32e, missing] Cr M T Y/E
- "Detailed socio-economic study of a community in the Bolivian Yungas of La Paz, and of recent changes in the community related to agrarian reform" [LTC, Ag. Ref. L.A.-Bibliog.].
87. ----. "La formación de nuevos pueblos en Bolivia: proceso e implicaciones." Estudios Andinos 1, No. 3 (1970): 23-37. M
- "Relates the growth of new population centers in the north to agrarian reform activities in that region. The breakup of haciendas, monetarization of exchange, and favorable natural conditions are stressed" [LTC, Ag. Ref. L.A.-Bibliog.]. Campe-sino syndicates have taken the lead in establishing these new towns. Apart from economic motives, other reasons for their establishment include the desire to build a school and the hopes of attaining designation as a cantón. In much of the south, social change has been slower, new towns have not appeared, and campesinos continue to maintain socio-economic ties with groups that exploit them.
88. ----. Revolución y reforma agraria en Chuquisaca y Potosí. Rev. version. La Paz: Servicio Nacional de Reforma Agraria, 1974. Pp. 151. [LTC Files Bo 58 B15; MACA: HD1306 B6 B32rc] M Y/E
- "Descriptive case study Degree of isolation of haciendas and Indian communities being studied is important in determining how each has been affected by the agrarian reform. Cites evidence to show the problems which arise when former landlords are allowed to maintain their presence in the countryside after the reform. An example of this is the attempted imposition and enforcement of work contracts on campesinos by landlords for the purpose of securing labor to work the lands which remain to them" [LTC, Ag. Ref. L.A.-Bibliog.].

89. ----. Revolution and Land Reform in the Bolivian Yungas of La Paz. Cr M N T Y/E
Rev. version. La Paz: Servicio Nacional de Reforma Agraria,
1970. Pp. 233. [LTC Files Bo 64.7 B17; MACA: HD1306 B6 B32r]

"A study of land reform on five ex-haciendas in Yungas. Out-
lines the prereform land tenure system, the process of agrarian
reform, post-reform tenure, living conditions, production, com-
munity development, and politics" [LTC, Agr.Ref.L.A.-Bibliog.].
90. ----, and TORRICO ÁNGULO, Juan. "Cambios Socio-Económicos en el M
Valle Alto de Cochabamba desde 1952: Los pueblos provinciales
de Cliza, Punata, Tiraque, Arani, Sacaba y Tarata." Estudios
Andinos 2, No. 1 (1971): 141-171. (Also available as LTC Re-
print No. 1905, November 1973.)

"Analyzes the impact of Bolivia's revolution and agrarian reform
on the villages of the Upper Cochabamba Valley. Presents social,
economic, and demographic data based on documentary and interview
sources" [LTC, Agr.Ref.L.A.-Bibliog.]. Considerable changes in
marketing have occurred, as a large number of new ferias have
been established.
91. BARRAZA, M.M. Investigación sobre reforma agraria en Bolivia. M T Y/E
Mendoza, Argentina: Universidad Nacional de Cuyo, 1971. Pp.
136. [MACA: HC1306 B6 B3i]
92. BARRIENTOS ASCARRUNZ, Fernando. "Mejoramiento de la rentabilidad T Y/E
en la producción del arroz: Chapare Tropical." Tesis de Grado
(Economía), UMSS, Cochabamba, 1973. Pp. 58. [UMSS-IESE]

Argues that mechanized production both reduces costs and in-
creases yields. It would also, however, lead to increased unem-
ployment given labor immobility. Cost data used are pre-1972 de-
valuation, and the devaluation probably affects the results more
than the author believes. Land is questionably excluded from
costs on the grounds that it is virtually free, and family labor
appears to be priced the same as hired labor. The treatment of
labor and the rise in machinery prices make the cost conclusions
dubious.
93. BARRIOS TUFINO, M.E. "Reconocimiento de la realidad rural del área T Y/E
de Paracaya, años 1964-1974." Thesis for Degree of Ingeniero
Agrónomo, UMSS, Cochabamba, 1975. Pp. 163. [UMSS-FCA]
94. BARTKOWIAK, C.S. Informe al Gobierno de Bolivia sobre cooperativas M
y comercialización cooperativa. Report No. 1807. Rome: FAO,
1964. Pp. 28. [MACA: HD3471 B3i]

Argues that the weakness of cooperatives in Bolivia and the high
rate of failure are due to lack of financial support, illiteracy,
and a lack of understanding of the principles of cooperative or-
ganization. Recommends that small cooperatives be disbanded or
joined with larger ones: that federations of cooperatives be

formed; and that rural marketing cooperatives be formed to sell agricultural products and to buy farm inputs. Also recommends a number of reforms in marketing of agricultural products. Marketing margins were quite high for many commodities; prices received by the farmer as a percentage of retail prices were 20% for "plátanos de mesa," 32% for cooking plantains; 47% for medium-sized oranges, and 50% for small oranges.

95. BASCOPE QUINTANILLA, J.B. "Ensayo de seis variedades de maíz para choclo en cuatro épocas de siembra en dos localidades del valle central de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1974. Pp. 75. [UMSS-FCA] T
96. BASCOPE V., Federico, and BENAVIDES, V.O. Bolivia--Industrias forestales: Recursos naturales renovables. Seminario FAO/Finlandia sobre aserrío y otras industrias forestales mecánicas en la cuenca del Amazonas, Belem, Brazil, 11 November 1974. Rome: FAO, 1974. [Accession No. 28059-74-WS] T
97. ----, and MANTILLA, Johnny. Informe sobre recursos forestales. Typewritten. La Paz: Centro de Desarrollo Forestal, March 1975. T
98. BELTRÁN ARANIBAR, Fausto, and FERNÁNDEZ B., José. ¿Dónde va la reforma agraria boliviana? Estudio crítico. La Paz: Talleres Gráficos Bolivianos, 1960. Pp. 222. [MACA: HD1306 B6 B4; LTC: HD486 B4] Cr M T Y/E
- "An evaluation of the Bolivian agrarian reform and recommendations for its improvement. Emphasizes problems related to the two broad issues: adjudication and productivity" [LTC, Agr.Ref. L.A.-Bibliog.]. Shows production declines for wheat, potatoes, corn, and rice after the agrarian reform. Points out that campesinos have received little credit. Highly critical of U.S. assistance.
99. BELTRÁN AVILA, A. "Introducción de nuevas técnicas en el cultivo de la papa y su relación con los agentes de cambio en la provincia O'Connor del Departamento de Tarija." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1968. Pp. 55. [UMSS-FCA] T
100. BENAVIDES V., Oscar. "Informe de Bolivia." In Informe de la I Reunión del Grupo de Trabajo sobre Introducción de Especies Forestales. Informes de Conferencias, Cursos y Reuniones No. 25. Quito, Ecuador: IICA, October 22-26, 1973. Pp. C-1-1, 1-18. [NAL: S401 156] T

Survey of the status of forestry development in Bolivia. The author notes that forestry legislation is confused and not consistent with existing programs. Little is known about what species exist and what their geographic distribution is.

101. BERGMANN, Barbara R. "The Cochabamba-Santa Cruz Highway in Bolivia." In The Impact of Highway Investment on Development, ed. George WILSON. Washington, D.C.: Brookings Institution, 1966. Pp. 17-54. [U.S. Dept. State: HE336 E3 W5]
- A "minimal" internal rate of return of 8-9% was calculated for the highway project and associated infrastructure. "This rate of return is is 'minimal' in two ways: it leaves out colonization benefits and other benefits difficult to measure, and it does not allow for the highly probable future increase in the stream of benefits" [BERGMANN].
102. BERGMANN, Walter. "Das Neue bolivianische Gesetz über die Agrarreform." Agrarpolitische Revue (Zurich) 1/2 (1954): 73-78. [LTC Files Bo 3 B27]
103. BLACUTT LLANOS, Nicanor. "Estudio para la definición de una política nacional de alimentación y nutrición en Bolivia." La Paz: Consejo Nacional de Economía y Planificación. La Paz, July 1973.
104. BLANCO TAPIA, C. "Observaciones generales del cultivo de la papa y sus posibilidades de mejoramiento en el altiplano y zonas altas adyacentes." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1965. Pp. 72. [UMSS-FCA]
105. "Bolivia." In Panorama económico latinoamericano. Havana: Prensa Latina, 1966. Pp. 103-175. [LTC: HC125 P15 1966]
- Pages 152-159 discuss agrarian reform.
106. Bolivia. Comisión Mixta del Ministerio de Agricultura-Corporación Boliviana de Fomento. Informe sobre suelos y recursos naturales renovables en la zona Yapacaní-Palacios-Palometillas del Departamento de Santa Cruz. La Paz: Ministerio de Agricultura, July 1966. Pp. 31. [MACA: S599 B6 C62i]
- Most soils werewet and poorly drained and were moderately heavy to heavy. This restricts or in some cases prohibits their use for agriculture. Some soils are in the process of laterization. Properly managed, commercial forestry can be profitable on a permanent basis.
107. Bolivia. Comisión Nacional de Estudio de la Caña y del Azúcar. La industria azucarera boliviana. Santa Cruz, Annual. [MACA: TP379 B6 L4]
- Contains data on production, consumption, sales, and foreign trade; prices paid by mills; selling prices; a summary of research results; and a reproduction of relevant legislation.

108. Bolivia. Comité Permanente para Políticas de Alimentación y Nutrición. Taller sobre políticas de alimentación y nutrición. La Paz, 17-21 May 1976. [MACA: TX551.B6 T3] N
- Contains 15-20 technical and policy papers.
109. Bolivia. Consejo Nacional de Economía y Planificación. Breve análisis de la asistencia técnica internacional otorgada a Bolivia. La Paz, February 1973. [OAS, Columbus Memorial Library] T Y/E
- Critical of past government efforts in forestry and agriculture (and other fields). Specifically criticized are lack of planning, inadequate funding, and poor coordination with international agencies. Livestock expansion is seen as offering the best prospects for increased agricultural production. Exploitation of forestry resources is also advocated for its potential contribution to foreign exchange and employment. International agencies are criticized for ignoring the Altiplano.
110. ----. ----. Estudio para la definición de una política nacional de alimentación y nutrición en Bolivia. 3 vols. La Paz, 1973. N
111. ----. ----. Plan nacional de desarrollo de los recursos humanos, 1969-1980. La Paz, 1969. Y/E
112. ----. ----. Plan quinquenal de desarrollo económico y social (versión global), 1972-1977. La Paz, 1973. Cr M T Y/E
113. ----. ---- et al. Plan regional de desarrollo económico-social Chuquisaca-Tarija. Sucre, 1972. Pp. 328. [MACA/RDD] Cr M N T Y/E
- Lack of adequate infrastructure hinders agricultural marketing. Average income is below the national average and is very unequally distributed.
114. ----. Corporación Boliviana de Fomento. Planificación física en las zonas de colonización. La Paz, 1965. T Y/E
115. ----. ----. Reseña histórica del proyecto Alto Beni. La Paz, 1965. Pp. 105. [INC] Cr M T Y/E
- Brief history of the project, with no analysis.
116. ----. ----. La situación ganadera en el trópico. La Paz, 1964. M T
117. ----. ----, and Instituto Nacional de Colonización. Programa de colonización: Informes Trimestrales (o Semestrales) Nos. 1-21. La Paz, 1964-1969. [INC] Cr M T Y/E
118. ----. Decreto Ley 03464. Reforma agraria en Bolivia. 1953. T
119. ----. Departamento del Beni. Pre-diagnóstico socio-económico. Trinidad, 1974. M T Y/E

120. ----. Dirección General de Estadística y Censos. Censo agropecuario 1950. La Paz, March 1956. Pp. 101. [MACA: HD9014 B6 D5; ERS/FDCD] T Y/E
121. ----. ----. Censo demográfico, 1950. La Paz, 1951. Y/E
122. ----. Dirección General de Economía Rural y Censos Agropecuarios. Estudio económico estadístico del Cantón Viacha. Typewritten. La Paz, 1965. 47 l. [MACA: HD1866 B6e] M N T Y/E
 General survey of a cantón in Ingavi Province, La Paz Department.
123. ----. Dirección Nacional de Informaciones. Bolivia: 10 años de revolución 1952-1962. La Paz, April 1962. Pp. 265. [LTC Files Bo71 B6n; MACA: J205 B6] T Y/E
 "An important piece of governmental propaganda recounting the history of the revolution and the social and economic benefits resulting from it" [LTC, Agr.Ref.L.A.-Bibliog.].
124. ----. Instituto Boliviano del Café. La industria cafetalera boliviana. La Paz, 1969. Pp. 34. [NAL: HD9199 B6I52] M T
 Annual report of INBOLCA describing administrative reorganization and progress in production and marketing.
125. ----. Instituto Nacional de Colonización. [Actividades]. La Paz, May 1976. [SAIG] M T
 Pamphlet briefly describing the INC's activities. Contains a table listing the colonies and the numbers of settlers and hectares as of January 1975.
126. ----. ----. Estudio e información básica de la zona de Chimoré. 2 vols. Typewritten. La Paz, January 1976. Pp. 347 + maps. [INC] Cr M T Y/E
 Detailed information on production, marketing, income, employment, credit, infrastructure, technical assistance, soils, etc.
127. ----. ----. Informe final del Préstamo 51-TF/B0. La Paz, September 1970. Pp. 100. [INC] Cr M T Y/E
128. ----. ----. Programa de alimentación para el asentamiento de colonos en el Proyecto San Julián. Petición de ayuda al Programa Mundial de Alimentos FAO/ONU para un proyecto de desarrollo económico y social. La Paz, June 1975. Pp. 40+. [MACA/RDD] N Y/E
 Requests \$745,000 from the World Food Program to help ensure that new colonists in the AID-financed San Julián project remain as permanent settlers.

129. ----. ----. Proyectos de colonización Puerto Villarroel-Km. 21; Chane-Piray; Ampliación de San Julián. 2 vols. La Paz, 1974. Pp. 450. [MACA/RDD; MACA: HD492 P72] M T Y/E
- Detailed, major survey of socio-economic factors; legal and technical matters; infrastructure; marketing opportunities; production; income; etc.
130. ----. ----, and Organization of American States. Department of Regional Development. Proyecto Chapare: Propuesta de estudio para el desarrollo integrado. La Paz, May 1975. [SAIG] Cr M T Y/E
- Data on population; soils, vegetation, and climate; and infrastructure. Proposed development plans.
131. ----. Instituto Nacional de Colonización y Desarrollo de Comunidades Rurales. Crédito cooperativo agropecuario. La Paz, March 1966. [INC] Cr
132. ----. Instituto Nacional de Estadística. Anuario de comercio exterior de Bolivia. La Paz, Annual. T
133. ----. ----. Indice de precios al consumidor en la ciudad de La Paz (Monthly). [MACA: HD7012 B6 (1957-66 only); NAL: HD7012 A1 B6] M N Y/E
134. ----. Junta Nacional de Planeamiento. "Ideas preliminares para la elaboración de un diagnóstico de la economía boliviana." Planeamiento 1 (1960): 49-71. [MACA: HC181 P42] M T Y/E
135. ----. ----. Plan bienal de colonización, 1963-1964. La Paz, 1963. [MACA: HD492 B62p] M N T Y/E
- Part of the 10-year (1962-1971) development plan.
136. ----. ----. Plan nacional de desarrollo económico y social, 1962-1971: Resumen. La Paz, 1961. [MACA: HC181 B62] M N T Y/E
- A summary of the agricultural plan is found on pp. 155-179. The four broad objectives were (1) quantitative and qualitative improvements in diets, based on national production, (2) production of non-food raw materials, (3) import substitution and exporting to improve the balance of payments, and (4) increases in employment and real average incomes of the campesinos, thus incorporating them effectively into the economic life of the country. Nutrition is discussed on pp. 62-67.
137. ----. Ministerio de Agricultura. El clima de Cochabamba. Boletín Climatológica No. 2. La Paz, 1967. [MACA: QC988 B6 B6 2] T
- Temperature and precipitation data.

138. ----. ----. Datos estimativos sobre la industria agropecuaria en el Departamento de Santa Cruz, Años 1958-1959-1960. Santa Cruz, n.d. M T
139. ----. ----. Estudio agro-económico de las zonas de Concepción y San Javier. La Paz, 1964. T Y/E
140. ----. ----. Fortalecimiento y desarrollo de la ganadería bovina de carne en el oriente boliviano. La Paz, 1969. M T
141. ----. ----. Investigación especial sobre las superficies cultivadas y producción de arroz, caña y algodón, y producción nacional de azúcar en el área norte del departamento de Santa Cruz, año agrícola 1963-1964. La Paz, 1965. T
142. ----. ----. Memoria-Informe 1956-1960. La Paz, 1960. [MACA: S190 In2] T
Summary of the Ministry's activities.
143. ----. ----. La producción arrocerá en la zona de Caranavi, Provincia Nor Yungas, Departamento La Paz, Año 1962. La Paz, 1963(?). T
144. ----. ----. Proyecto Mostenes, Capacidad agrológica y recursos naturales. La Paz, 1967. T
145. ----. ----. Reconocimiento detallado de suelos e inventario forestal, Proyecto Mostenes. La Paz, 1967. T
146. ----. ----. Estación Experimental de Saavedra. Resumen climático de la estación experimental agrícola de Saavedra. Saavedra, Santa Cruz, 1971. T
147. ----. Ministerio de Agricultura y Ganadería. Arroz: Estudio agro-económico. Publicación No. 5. La Paz, October 1972. [MACA/RDD] M T Y/E
148. ----. ----. Café: Estudio agro-económico. Publicación No. 9. La Paz, October 1972. [MACA/RDD] M T Y/E
149. ----. ----. Caña de azúcar: Estudio agro-económico. Publicación No. 6. La Paz, October 1972. [MACA/RDD] M T Y/E
150. ----. ----. Estudio del trigo. Publicación No. 2. La Paz, October 1972. Pp. 58 + 68 Tables. [MACA/RDD] Cr M T Y/E

Presents a program for expanding the area devoted to wheat from 70,000 has. in 1970 to 185,000 has. in 1985 (including 60,000 has. in the Santa Cruz area). Contains detailed cost-of-production estimates, labor requirements, and credit requirements, by Department.

151. ----. ----. Frutas tropicales: Cítricos, bananas, piñas. Publicación No. 10. La Paz. [MACA/RDD] M T Y/E
152. ----. ----. Ganado lechero: Estudio agroeconómico. Publicación No. 8. La Paz, October 1972. [MACA/RDD] M T Y/E
153. ----. ----. Ganado porcino: Estudio agroeconómico. Publicación No. 12. La Paz, October 1972. [MACA/RDD] M T Y/E
154. ----. ----. Maíz: Estudio agroeconómico. Publicación No. 11. La Paz, October 1972. [MACA/RDD] M T Y/E
155. ----. ----. Piretro: Estudio zonal agroeconómico. Publicación No. 13. La Paz, October 1972. [MACA/RDD] M T Y/E
156. ----. ----. Proyecto de oleaginosas: Algodón, soya, maní, girasol. Publicación No. 3. La Paz, October 1972. [MACA/RDD] M T Y/E
157. ----. ----. Proyecto ganadero de bovinos. Publicación No. 1. La Paz, October 1972. [MACA/RDD] M T Y/E
158. ----. ----. Proyecto ovinos--Zona altiplano central ampliada. Publicación No. 4. La Paz, October 1972. [MACA/RDD] M T Y/E
159. ----. Ministerio de Asuntos Campesinos y Agricultura. "Capacidad agrícola de los suelos." Typewritten (individual) studies of the following haciendas: Santa María, Cota, Puntiti Alto, Collpa Pampa, Huayllani, Santa Rosa, Iquircolla, and San Carlos. Cochabamba, 1971. [MACA: Cochabamba] T
160. ----. ----. Boletín de noticias de mercadeo agrícola. La Paz, Semi-annual since July-December 1970. [ERS/FDCD has some issues; MACA/RDD] M T
- Provides average and modal prices in La Paz at the retail (98 products) and wholesale (65) level, and maximum, minimum, and modal prices paid to farmers, by Department for 37 crop products and 21 types of animals -- all on a monthly basis. Annual data are also provided. In addition, there are data on transport costs, product flows, and distances from production centers to Departmental capitals; average daily wages, with and without meals, by province; costs per hour and per hectare for agricultural machinery and oxen, by province; price data for 19 input categories; and CIF import data on agricultural inputs.
161. ----. Ministerio de Asuntos Campesinos y Agropecuarios. Diagnóstico del sector agropecuario. 2 vols. La Paz, 1974. [SAIG] Cr M T Y/E
- Comprehensive survey of the agricultural sector, with considerable statistical information. The unemployment equivalent in rural areas is estimated to be at least 49%; but the methodology used to obtain this figure is questionable.

162. ----. ----. "Mesa redonda: Evaluación y proyecciones de la actividad algodonera." Santa Cruz, May 12-14, 1976. Pp. 8 + Anexes. [SAIG] Cr M T Y/E
- Valuable discussion of the status of cotton production, including a description of the problems facing cotton producers and a series of recommendations both for producers and for government policy. Detailed cost-of-production and profitability data are provided.
163. ----. ----. "Mesa redonda sobre aspectos técnicos, económicos e industriales para soya, maíz y trigo." Santa Cruz, October 27-29, 1976. Pp. 35. [SAIG] Cr M T
- Valuable discussion of the status of soybean, corn, and wheat production, including descriptions of supply-demand conditions, problems facing producers, and detailed cost-of-production and profitability data are provided. Recommendations are presented for both growers and the government.
164. ----. ----. Plan quinquenal agropecuario. La Paz, July 1976. [SAIG] Cr M T Y/E
- Objectives of the plan are to (1) increase production and productivity, especially among campesinos; (2) increase campesino income and well-being and make income distribution more equal; (3) reduce imports; (4) increase and diversify exports; (5) achieve harmonious and balanced regional economic development; and (6) reduce rural underemployment through more rational use of land, water, and other natural resources. Production and yield data are projected for 43 products.
165. ----. ----. "Principales cultivos de Santa Cruz." Santa Cruz, [1976]. M T
- Summary production and market data for cotton, rice, sugarcane, soybeans, corn, tobacco, and pineapple.
166. ----. ----. Resumen informativo del sector agropecuario de Bolivia, 1974. La Paz, 1974. Pp. 67. [Available in MACA/RDD; MACA: S190 B6r] M T
- Summary of government objectives; production trends and projections for major crops; government marketing activities; infrastructure; feasibility studies.
167. ----. ----. Estación Experimental de Saavedra. Informe Anual. Santa Cruz: MACA and C.OO.PP. T
168. ----. ----, and Instituto Interamericano de Ciencias Agrícolas. II Reunión Nacional de Investigadoras en Ganadería. La Paz: T

IICA, 1974. [SAIG]

About 40% of the research planned since the first meeting in 1972 has not been carried out because of lack of funding and technical manpower. Internal communication among livestock researchers is poor. Some research has been deficient.

169. ----. ----, and Ministerio de Industria, Comercio y Turismo; Honorable Alcaldía Municipal de La Paz; and Instituto Interamericano de Ciencias Agrícolas. Primera Reunión Sobre Sistemas de Comercialización, Centros de Acopio y Mercados Mayoristas. La Paz, November 1974. [Available in MACA/RDD] M
- Contains four articles on agricultural marketing in Bolivia.
170. ----. ----; Ministerio de Planificación y Coordinación; Banco Interamericano de Desarrollo; and Instituto Interamericano de Ciencias Agrícolas. Promoción del cultivo de la soya. Segundo Documento. La Paz, August 1976. Pp. 256 + Annexes. [MACA: Santa Cruz] Cr M T Y/E
- A training manual and guide for agricultural technicians working in soybeans. Discusses supply-demand conditions, marketing, and credit in addition to technical matters relating to production. Economies of scale were found in soybean production, with units of less than 100 hectares not profitable at existing prices. Expansion of production depends largely on export markets, which will require a lowering of production costs. Prices, it is argued, should be increased. More technicians need to be trained in oilseed production.
171. ----. Ministerio de Economía Nacional, and Deutsche Projekt Union G.m.b.H. Análisis económico de los proyectos de colonización y riegos. Cochabamba, 1965. Pp. 88. [MACA: HD492 D4a] Cr M T Y/E
- Concludes that development of the Villamontes and Abapó/Río Grande irrigation projects would be much more beneficial to the country than colonization projects in Yapacaní, Chimoré, Chapare, and Alto Beni. Expected net income per family in the colonization zones was estimated to be only \$167, while in the irrigation zones it would average \$4,880. Very little import substitution or exporting was possible from the colonization loans, while the irrigation zones could produce an export surplus of \$60 million annually. The assumptions used in the study are very pessimistic for the colonization zones and very optimistic for the irrigation zones. The employment implications of the two types of projects are not discussed.
172. ----. ----, and ----. Diseño básico, inversiones requeridas, y rentabilidad del sistema de riego de Villamontes. 2 vols. La Paz, October 17, 1963. [MACA/RDD] M T Y/E

173. ----. ----, and ----. Proyecto de riego y ganadería Abapó-Izozog: Etapa completada al 30 de abril de 1965. Cochabamba, June 26, 1965. [MACA/RDD] M T Y/E
174. ----. ----, and ----. Tres conferencias: Agua potable, regadío, electricidad. La Paz, 1964. T
175. ----. ----, and Misión Británica. La agricultura tropical en Bolivia: Sus posibilidades y requerimientos de orientación técnica para su desarrollo. La Paz, 1962. Pp. 61. [MACA: S189 M5] T
- Discusses government agricultural programs; soils, vegetation, and climate; research; extension; marketing; irrigation; and prospects for various crops and livestock.
176. ----. Ministerio de Finanzas. Presupuesto general de la nación. La Paz, Annual. T
177. ----. Ministerio de Planeamiento y Coordinación. Plan de desarrollo económico y social, 1976-1980: Resumen. La Paz, 1976. Cr M T Y/E
178. ----. Ministerio de Planificación y Coordinación. Cuentas nacionales, 1950-1969. La Paz, 1970. Y/E
179. ----. ----. Estrategia socio-económica del desarrollo nacional, 1971-1991. 3 vols. La Paz, 1970. [MACA: HC181 B63] Cr M N T Y/E
- Long-term perspective plan, designed to replace dependence and marginality with liberation and participation. This ambitious plan calls for growth rates of 8% for GDP and 5.6% for agriculture.
180. ----. Ministerio de Previsión Social y Salud Pública. Encuesta clínico-nutricional y socio-cultural de la población de Mineros, 21-28 Abril, 1974. La Paz, n.d. [MPS-SP] N
181. ----. ----. Encuesta clínico-nutricional y socio-cultural de la población de San Ignacio de Moxos (Beni), 20-28 Noviembre, 1974. La Paz, in press. [MPS-SP] N
182. ----. ----. Plan anual operativo de alimentación y nutrición, 1977. La Paz, 1976. N
- Annual plan based on the 5-year nutrition plan. Describes proposed activities.
183. ----. ----. Plan para una política de alimentación y nutrición a ser integrado en el desarrollo económico y social de Bolivia, 1976-1980. La Paz, 1976. [SAIG] N
- Contains summary data from previous Ministry studies on degrees of malnutrition; causes of mortality; consumption in grams by food product group; and deficiencies in proteins, calories, calcium, riboflavin, vitamin A, and iron. The "plan" is actually only a very short outline of goals, objectives, and proposed activities.

184. ----. ----. Tabla de composición de alimentos bolivianos. La Paz, 1973. N
185. ----. Ministerio de Relaciones Exteriores. Memorandum II: Economic Development of the Republic of Bolivia. La Paz, December 1954. Pp. 132. [ERS/FDCD] Cr M T Y/E
- An outline of the government's plans to regain financial and economic stability. Agricultural development plans focus on Santa Cruz and other parts of the Oriente. While attitudes toward European immigration are favorable, it is felt that internal migration would cost less in foreign exchange, help solve social problems, and increase agricultural output more quickly than some have suggested.
186. ----. Ministerio de Salud Pública. Encuesta clínico-nutricional Concepción-Tarija, Junio 1968. División de Nutrición, Publicación No. 9. La Paz, December 1968. Pp. 38. [MPS-SP] N
187. ----. ----. Informe resumido de Bolivia. Prepared for Seminario sobre Educación en Nutrición de Sud América (Brazil). La Paz, 1960. Pp. 9. [MACA: TX551 B6 S4] N
188. ----. ----. Informe sobre encuesta social de la población y clínico nutricional del pre-escolar de Tarabuco, Provincia Yamparáez, Departamento de Chuquisaca. División de Nutrición, Publicación No. 1-70. La Paz, 1970. Pp. 9 + Annexes. [MPS-SP] N
189. ----. ----. El papel de la educación alimentaria en la prevalencia de desnutrición infantil en las clases económicamente débiles de la ciudad de La Paz. La Paz, January 1966. Pp. 14 + Tables. [MPS-SP] N
190. ----. ----. Programa integrado de nutrición aplicada. La Paz, February 1967. [MACA: TX551 B6 T7d] N
191. ----. ----. Resultado de las encuestas realizadas en Santiago de Llalagua (Región del Altiplano) y San Benito (Región del Valle). Departamento Nacional de Nutrición, Publicación No. 5-67. La Paz, November 1967. Pp. 75. [MPS-SP] N
192. ----. Ministerio de Trabajo. Estudio sobre la seguridad social boliviana. La Paz, 1969. Y/E
193. ----. Ministerio de Trabajo y Desarrollo Laboral. Estadística Laboral: Período 1970-1975. La Paz, 1976(?). Y/E

Employment and labor statistics. Unemployment and underemployment data are provided only on an economy-wide basis; they are estimated rather than measured data, and the method of estimation is not clear. Open unemployment is estimated to have fallen from 5.9% in 1970 to 3.7% by 1975. The underemployment rate is estimated to be 30% throughout this period, but no indication is given of the degree of underemployment.

194. ----. Ministerio de Transportes, Comunicaciones y Aeronáutica Civil. Infraestructura y desarrollo. La Paz, 1973. M
195. ----. Secretaría Nacional de Planificación y Coordinación. Colonización en el Oriente: Informe sobre investigaciones en la zona Nor Oriental de Santa Cruz. La Paz, 1964. [LTC Files Bo 69.5 B6] M T Y/E
196. ----. ----. Cuentas nacionales de Bolivia, 1958-1965. Pp. 57. La Paz, 1966. [MACA: HJ910 S4c] Y/E
197. ----. ----. Plan bienal de desarrollo económico y social, 1963-1964. (Special issue of Planeamiento, Nos. 6-7-8 [January-September].) [MACA: HC181 P42] M N T Y/E
- Part of the 1962-71 Plan.
198. ----. ----. Plan bienal, 1965-1966: Sector agropecuario y riegos. Partes I-II. La Paz, 1966. Pp. 169 + 242. [MACA: HD1866 B62 and B6j] M T Y/E
199. ----. ----. Plan nacional de colonización, 1965-1974. La Paz, 1965(?). M T Y/E
200. ----. Servicio Agrícola Interamericano. An Agricultural Production Program for Bolivia. La Paz, July 1963. Pp. irregular. [ERS/FDCD] Cr M N T Y/E
- A review of existing Ministry of Agriculture programs and suggestions for future programs.
201. ----. ----. Comercialización e industrialización del trigo en Bolivia. La Paz, 1962. M
202. ----. ----. Estadísticas estimativas de la producción agropecuario. Separate volumes for each Department. La Paz, 1958-1960. [ERS/FDCD; NAL: HD1861 A5B6 (Tarija only)] T
- Sample surveys on which production estimates for subsequent years were based, at least until the late 1960s. For a criticism of these data, see DEERE (1970).
203. ----. ----. Estudio preliminar de los aspectos económicos y sociales de la provincia de Santiestéban. Unpublished. La Paz, 1966. M T Y/E
204. ----. ----. Estudio preliminar de los aspectos económicos y sociales de la provincia del Sara. Unpublished. Portachuelo, 1965. M T Y/E
205. ----. ----. Estudio preliminar de los aspectos económicos y sociales de la provincia Warnes. Unpublished. La Paz, 1966. M T Y/E

206. ----. ----. Estudio preliminar de los aspectos socio-económicos de la provincia Andrés Ibáñez. Unpublished. La Paz, 1966. M T Y/E
207. ----. ----. Estudio sobre trigo en los departamentos de Cochabamba, Potosí, Chuquisaca y Tarija, con encuesta sobre molinos. La Paz, 1960. M T
208. ----. ----. Informe Anual (1949/50-1962/63). [MACA: S189 Se6I] Cr M N T Y/E
Surveys of SAI activities; agricultural trends and problems.
209. ----. ----. Informe de Actividades: Julio 1956-Marzo 1960. La Paz, 1960. Pp. 86. [MACA: S189 Se6Ic] Cr M T Y/E
Survey of SAI activities; agricultural trends and policies.
210. ----. ----. Situación actual de las cooperativas agropecuarias de Bolivia. La Paz, 1964. M
211. ----. ----. Summary of the Agricultural and Road Study for the Concepción and San Javier Region of Santa Cruz de la Sierra. La Paz, 1960. Pp. 27 + Annexes. [ERS/FDCD] M T
Examination of the agricultural potential of the area and the most feasible route for a penetration road. The cost of colonization would be relatively low since existing population centers in these isolated areas already have much of the necessary social infrastructure. Soil samples should be taken before tracts are allocated to colonists.
212. ----. ----. Uso y reconocimiento de suelos--El Chapare: Capacidad agrológica y recursos naturales. Informe C-08. La Paz, 1964. Pp. 243. [MACA: S599 B6 B6ic] T
Detailed description of soils and natural resources, by sub-zone. Brief description of the colonization program.
213. ----. Servicio Nacional de Caminos. Plan vial nacional, decenio 1970-1979. La Paz, 1969. M
214. ----. Servicio Nacional de Meteorología e Hidrología, and Servicio Agrícola Interamericano. El clima de Santa Cruz de la Sierra. Boletín Climatológico, No. 1. La Paz, 1958. [MACA: QC988 B6 B6 1] T
Temperature and precipitation data.
215. Bolivian-Utah State/USAID Study Team. Irrigation Analysis for Selected Crops, Santa Cruz, Bolivia. USU Series 13/72. Logan, Utah, July 1972. Pp. 185. [SAIG] T Y/E
The agricultural potential for the area is said to be excellent, but maximum yields for most crops will require irrigation. Additional meteorologic and hydrologic data should be collected.

Cost-of-production/profitability tables are provided for 9 crops or double-crop patterns and for 3 alternative technologies: no fertilizer or irrigation, irrigation but no fertilizer, and irrigation plus fertilizer.

216. BONO, Percival. Informe al Gobierno de Bolivia sobre la situación ganadera en el altiplano y el trópico de Bolivia. FAO Report No. AT 2253. Rome: FAO, 1966. Pp. 52. [MACA: SF55 B6 B6s] M T
- Recommends that first priority be given to the tropical areas, where credit and technical assistance are needed to reverse productivity declines caused by disease and poor management. In the Altiplano, particular attention should be given to using triple superphosphate (46% P₂O₅) to stimulate the growth of legumes.
217. BOOMKAMP, Jan. Diagnóstico sobre la economía triguera de Bolivia. La Paz: Secretaría Nacional de Planificación, April 1966. Pp. 49 + 25 Tables. [MACA: HD9049 W4 B6d] M T
- The problem of Bolivian wheat production is not basically a technical one (production could easily triple or more) but one of marketing and unfavorable competition with imported flour. A market for wheat by-products is also lacking. Milling costs are high because of unused capacity. Recommends a tax on imported flour, the proceeds to be used to lower the costs of wheat imported by the mills and to increase prices paid for domestic wheat. Sellers of flour should be required to sell 1 qq. of national flour for each 4 qq. imported.
218. BOTCH, Henry, and ZUNA, Jorge. Informe de la División de Extensión Agrícola entre 1948-1960. La Paz: Ministerio de Agricultura, 1960. T
219. BOURONCLE, Carreón A. "Contribución al estudio de los Aymaras," América Indígena 24 (January 1964): 129-169, 223-269. T Y/E
220. BRAUN, Otto. Forrajeras del altiplano. Boletín Experimental No. 30. La Paz: SAI, May 1964. Pp. 19. [MACA: S189 Se6B] T
221. ----. Pastos del trópico húmedo de Bolivia. Boletín Experimental No. 31. La Paz: SAI, 1966. Pp. 21. [MACA: S189 Se6B] T
- Brief description of climate, vegetation, and pastures, and recommendations for range management.
222. BROCKMAN, Carlos E. et al. Earth Resources Technology Satellite Data Collection Project ERTS-1, Bolivia. La Paz: Servicio Geológico de Bolivia, April 1974. [MACA/RDD] T

223. BROOKS, Eldon. "Review of the Bolivian Agriculture Farm Supply Mechanisms, Related to the Small Farm Sector as Outlined in the Sector Assessment and IRR for Agriculture Sector Loan I 1974." [La Paz], November 1974. Pp. 8 + Annexes. [SAIG] Cr M T
- Discusses imports, prices, and distribution of farm inputs. Demand projections are made for several years. Recommends that the government institute a monthly production and marketing reporting service.
224. BROWN, Franklin Bruce. "Some Feasible Long-Run Policy Alternatives for the Agricultural Sector in Bolivia." M.S. Thesis, Utah State University, Logan, 1974. T
- Uses a linear programming model to determine which policies will be most effective in achieving crop production targets. Traditional technology is found to be most efficient for some crops. For others, however, more advanced technologies using irrigation, fertilizer, or both are more efficient (e.g., rice, cotton, potatoes, peanuts, and wheat).
225. BUECHLER, Hans C. "Agrarian Reform and Migration on the Bolivian Altiplano." Ph.D. Dissertation, Columbia University, New York, 1966. Pp. 191. T Y/E
- "Study of the impact of land reform and migration on a free community and an ex-hacienda. Among the effects of migration is the development of the 'migration community,' characterized by the passage of migrants both to and from the city, while the agrarian reform has eliminated the patrón as a source of leadership and opened the way for a 'new elite' of village leaders" [LTC, Agr.Ref.L.A.-Bibliog.].
226. ---, and BUECHLER, Judith-María. The Bolivian Aymara. New York: Holt, Rinehart, and Winston, 1971. Pp. 114. [GWU: F2230.2 A9 B8] Cr M T Y/E
- Study of the community of Compi on the central shores of Lake Titicaca, where the agrarian reform was quickly accomplished. Expropriated land was at first worked cooperatively, but disillusionment led to a system under which individual parcels are rented out at a fixed annual rate. Before 1952 the potato was the main crop; today it is a minor one. Peasants now market their produce (mainly onions) directly in La Paz or through middlemen residing in the community; women play a more important role than men in marketing. Land and climate are favorable for agriculture. Oxen are used for plowing.
227. BUECHLER, Judith-María. "Peasant Marketing and Social Revolution in the State of La Paz, Bolivia." Ph.D. Dissertation, McGill University, Montreal, 1972. M

228. BUENO, José. [Thesis on Commercial and Non-Commercial Agriculture in the South Altiplano and Valles]. M.A. Thesis, Utah State University, Logan, 1977. [MACA/RDD] M T Y/E
229. BURDEN, O.J. "Report on a Visit to Bolivia from May 17th to June 5th, 1971." [Santa Cruz]: MBAT, 1971. Typewritten. Pp. 24. [CIAT: MBAT File No. 56] M T
- Production and marketing of tropical fruits are primitive, and there is a lack of personnel trained in tropical fruit production. Until these problems are solved, Bolivia will not be able to tap potential export markets for bananas, pineapple, and citrus fruits.
230. BURELA, Alberto, and BURELA, Martha. "Forgotten Citizens of Bolivia." Report prepared under USAID Regional Contract No. LA 206. La Paz, 1965. Y/E
231. BURELA SUÁREZ, Alberto. Diecisiete años de observación metereológico en la Estación Experimental Agrícola de Saavedra. Santa Cruz: Estación Experimental Agrícola de Los Llanos, March 1969. Pp. 10. [MACA: S189 Ex72 Sa12B8] T
232. ----. "Posibilidades de lograr el autoabastecimiento del país en aceite comestible." Foro Agronómico (La Paz, Ministerio de Agricultura) 1 (1963): 49-66. [MACA: S189 F6] M T Y/E
- Soybeans, cotton, peanuts, and sesame can be grown in the Oriente. The major obstacle now is lack of markets. Peanuts and sesame can be grown on small farms using animal power, both in the Oriente and in the valleys. Linseed, sunflowers, and soybeans can also be grown in the valleys. Domestic production of oilcrops in 1963 supplied less than 5% of the national market.
233. BURKE, Melvin. "An Analysis of the Bolivian Land Reform by Means of a Comparison between Peruvian Haciendas and Bolivian ex-Haciendas." Ph.D. Dissertation, University of Pittsburgh, 1967. Pp. 243. M T Y/E
- " . . . Emphasizes economic efficiency. Presents socio-economic and demographic data for the estates studied. The economic analysis indicates that no significant economies of scale affect agriculture in this region. The Bolivian reform has increased land productivity, decreased labor productivity, and left capital productivity unchanged" [LTC, Agr.Ref.L.A.-Bibliog.].
234. ----. "Bolivian Wheat and Flour, Production versus Importation: Once Again." La Paz: USAID/Bolivia, 1968. Pp. 41. [NAL: SB191 W5 B9] T Y/E
- Since 1950, only 10% of Bolivia's wheat has been milled into flour. PL 480 wheat imports have adversely affected both production and milling. Now that Bolivia must pay for PL 480 wheat in dollars, the grant component of this program has disappeared.

The author recommends that Bolivia adopt a program to increase domestic wheat and flour production. "Because there exists underemployment in the wheat growing areas of the country and excess capacity in the milling industry, the real opportunity cost of such a program would be nominal" [BURKE].

235. ----. "Does 'Food for Peace' Assistance Damage the Bolivian Economy?" Inter-American Economic Affairs 25, No. 1 (Summer 1971), 3-19. M T Y/E
- Food for Peace assistance did nothing to increase domestic production of wheat and had adverse effects on the Bolivian milling industry. But the high grant-aid component of this assistance benefited the country in other ways. Domestic wheat and flour production could increase substantially if the government adopted a "crash program" emphasizing both quantity and quality.
236. ----. Estudios críticos sobre la economía boliviana. La Paz: Editorial Los Amigos del Libro, 1973. Pp. 271. [MACA: HC181 B8e] Cr M T Y/E
- Includes chapters (previously published) on agrarian reform, credit, and PL 480. Argues that PL 480 aid has retarded agricultural production in Bolivia.
237. ----. "Land Reform and Its Effect Upon Production and Productivity in the Lake Titicaca Region." Economic Development and Cultural Change 18 (April 1970): 410-450. M N T
- Earlier version of the author's article in MALLOY and THORN (1971).
238. ----. "Land Reform in the Lake Titicaca Region." In Beyond the Revolution: Bolivia Since 1952, ed. James M. MALLOY and Richard S. THORN. Pittsburgh: University of Pittsburgh Press, 1971. Pp. 301-339. M N T
- Compares 4 Bolivian ex-haciendas with 4 similar haciendas in Peru. Bolivian campesinos had greater total income (due to more off-farm work opportunities), a higher standard of living, possibly more money income, and more leisure time than their Peruvian counterparts. With regard to overall economic efficiency, neither farm system had a clear advantage. No economies of scale were found, nor was there evidence of financial economies of scale (e.g., quantity discounts).
239. CABALLERO DA SILVA, Daysis. Cantón Carrasco, Nor Yungas. La Paz: n.publ., 1966. Pp. 156. [INC: HD492 C3c] M T Y/E
240. CABRERA MAYORGA, H. "Comparación del método seco y el método húmedo en la siembra de almácigos de tabaco." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1968. Pp. 77. [UMSS-FCA] T

241. CABRERA ORTÍZ, Julio. Informe final sobre expansión del cultivo de piretro en Bolivia. Proyecto No. SIS/BOL/74/003. N.p.; [1975]. Pp. 32 + Annexes. [UN/B] M T Y/E
- Land suitable for pyrethrum is available in both La Paz and Cochabamba Departments. Increased production should be based on cooperative efforts among small farmers, and considerable technical assistance will be needed. Research is needed to increase yields.
242. CALDERBANK, G., and COLE, Gillian. "The Dairy Industry in Santa Cruz, Bolivia." Typewritten. La Paz: MBAT, 1966. Pp. 27 + Appendices. [MACA: SF259 C3] M N T
- Development of the dairy industry is an important element in improving low nutritional levels. The Santa Cruz area is best able to provide most of the national growth in milk production. Improvements are needed in milking facilities, calf-housing, water supply, pasture management, systematic breeding and selection, calving percentage, marketing, veterinary attention, animal nutrition, and farm management.
243. CALDERÓN CUENTAS, J. de la C. "Evaluación de la influencia de extensión agrícola en la provincia Ingavi del Departamento de La Paz." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1964. Pp. 48. [UMSS-FCA] T
244. CALDWELL, H.S. Informe al Gobierno de Bolivia sobre Fomento de las industrias pecuarias y la lucha contra las enfermedades del ganado. FAO/EPTA Report No. 534. Rome: FAO, 1957. Pp. 38. [MACA: SF105 F62] T
- Increasing livestock production is an urgent necessity because of rising imports and a declining capacity to import. Possibilities for increased production are "enormous." Land reform, low prices fixed by the government, and limitations on the import of agricultural inputs have limited production. The level of livestock technology is exceedingly low. Disease control is an important part of an overall livestock development program and can result in rapid increases in production.
245. CAMACHO MALDONADO, Julio Augusto. "Rendimiento comparativo de 10 variedades de trigo con aplicación de fertilizantes en 6 localidades de 'San Juan de Oro.'" Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1976. Pp. 60. [UMSS-FCA] T
246. CAMACHO SAA, Carlos. Estudio de caso en el valle bajo de Cochabamba (Caramarica, Parotani, Itapaya). La Paz: Servicio Nacional de Reforma Agraria, 1970. Pp. 207. [MACA: HD1306 B6 C33e; LTC microfilm] Cr M T Y/E
- A study of the land tenure system prior to the 1952 revolution, the changes introduced after 1952, and their socio-economic effects. A significant improvement in economic conditions was found, a result the author suggests is atypical.

247. ----. "Minifundia, Productivity, and Land Reform in Cochabamba." Cr M T Y/E
 Ph.D. Dissertation, University of Wisconsin, Madison, 1967. [Ab-
 breviated version available as LTC Research Paper No. 21--AID
 Ref. No. BL301.35 5111]
 " . . . based on 142 interviews with families in Ucuireña, near
 Cochabamba. Tests various hypotheses and finds support for
 treating the marginal productivity of labor as near zero on most
 plots. Concludes that productivity on postreform minifundios
 is low, but probably no lower than on prereform haciendas" [LTC,
 Agr.Ref.L.A.-Bibliog.].
248. Cámara Agropecuaria del Oriente (Santa Cruz). Memoria (annual). Cr M T
 [MACA: S15 B6 C3m (1968 only)]
249. CAMARGO G., Arnulfo, and SORIA GALVARRO, Freddy. Trabajos prelimi- T
nares sobre ensilage de pastos tropicales en el área de Santa
Cruz. Boletín Técnico No. 29. Saavedra: Estación Experimental
 de Saavedra, 1972. Pp. 34. [MACA: S189 Ex72 Sa12Bd 29]
 Preliminary research suggests the feasibility of using silage
 to feed cattle during the dry season.
250. CANDIA, José D. Evaluación del cultivo del algodón en Santa Cruz T
en la campaña 1972-1973. Santa Cruz: Asociación de Productores
 de Algodón, 1973(?). Pp. 55. [MACA: SB251 B6 C3e]
251. ----. Las plagas del algodón y su reconocimiento. Boletín de Di- T
 vugación No. 2. Santa Cruz: Universidad Gabriel René Moreno,
 1971. Pp. 25. [MACA: S539 B6 S32b]
252. ----. Problemas y soluciones de las plagas y enfermedades de la T
caña de azúcar en Santa Cruz. Boletín Experimental No. 27. La
 Paz: Ministerio de Agricultura, 1963. Pp. 47. [MACA: S189
 Se6B 27]
253. CANELAS, Demetrio. "Aspectos de la revolución boliviano: La re- T Y/E
 forma agraria y temas anexos." Conferencia auspiciada por el
 Centro de Estudios Económicos de la Universidad de San Andrés en
 el Foro Político-Económico. La Paz, 1958. Pp. 76. [LTC Files
 Bo 3 C1; MACA: HD1306 B6 C2a]
 "Critique of the agrarian reform process. 'Neither the Bolivian
 land nor the people, nor the nation itself has a clear future,
 given the decrees of the revolutionary government, dominated by
 mad, spiteful greedy men, ideological epileptics. . .'" [LTC,
 Agr.Ref.L.A.-Bibliog.].

254. CANELAS L., René (ed.). Leyes agrarias: Compilación. La Paz: Editorial Letras, 1968. Pp. 215. [NAL: HD1158 B6C3] T
255. CANELAS LUJAN, J.F. "Aspectos económicos del cultivo de maíz en el valle de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1962. Pp. 89. [UMSS-FCA; missing] T
256. CANELAS O., Amado. Mito y realidad de la reforma agraria. La Paz: Editorial "Los Amigos del Libro," 1966. Pp. 305. [MACA: HD1306 B6 C32m; LTC HD486 C32] T Y/E
- "Marxist critique of the agrarian reform and colonization programs which have broken up the latifundios, but have created minifundios and perpetuated the capitalist property system" [LTC, Agr.Ref.L.A.-Bibliog.]
257. CAPPELLETTI, Fausto. Informe al gobierno de Bolivia sobre colonización. FAO Report No. 1927. Rome: FAO, 1965. Pp. 41. [LTC Files Bo 17 C1; MACA: HD492 C3i] Cr M T
- " . . . makes several recommendations, including the creation and funding of a National Agrarian Reform Service, legislation of a new agrarian reform law, and training of personnel to work on colonization projects" [LTC, Agr.Ref.L.A.-Bibliog.]. Also recommends a separate colonization agency, sufficiently funded to provide adequate technical assistance. Argues that small, weak cooperatives should be combined and that more technical assistance should be given to cooperatives; without cooperatives, it is argued, colonization will not be successful. Data on existing colonies are largely descriptive.
258. CARBALLO, Manuel. "Agrarian Reform in Bolivia." A.B. Thesis, Princeton University, Princeton, N.J., 1963. T Y/E
- Disagrees with PATCH's contention that the agrarian reform was essentially forced upon the MNR by campesinos. Argues that the government was officially turning to agrarian reform before campesino pressures became significant.
259. CARDENAS, René, and MACHICADO, Flavio. "La reforma agraria en Bolivia." In Proceedings of the 2nd Seminar on Agrarian Reform and Economic Development. 2 vols. Santiago, Chile(?): Programa de Estudios Económicos Latinoamericanos para Graduados, 1962. Vol. 2, pp. 788-813. [LTC: HD107 S25 1962] T Y/E
260. CARDONA URIONA, Edilberto E. "Comportamiento de 16 variedades de soya en la zona de Abapó-Izozog, Santa Cruz." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1976. Pp. 59. [UMSS-FCA] T
- Soybeans are a highly desirable crop for this region; they not only contribute to reducing the edible oil deficit, but their cultivation helps conserve nitrogen in the soil. Most of the

varieties tested have higher yields than the variety now being used; but not all are suitable for mechanized harvesting because the vainas are too low. The cost of using new varieties is not indicated.

261. CARDOZO GONZÁLES, Armando. El altiplano de Bolivia y la cría de ovejas. Cochabamba: Editorial Universitaria, 1970. Pp. 165. [NAL: SF375.5 B6 C3] M T Y/E
- Detailed description of conditions and practices in various parts of the Altiplano.
262. ----. "Consumo de fertilizantes en el altiplano de Bolivia." Gaceta Económica (Bolivia) 3, No. 12 (1969): 7-8. T
263. ----. Investigaciones forrajeras en el altiplano--I: Estación Experimental Agrícola Belén, 1949-1963. Boletín Experimental No. 43. La Paz: MACA, December 1970. Pp. 34. [MACA: S189 Se6b] T
264. ----. Investigaciones forrajeras en el altiplano--II: Estación Experimental Ganadera Patacamaya, 1958-1967. Boletín Experimental No. 44. La Paz: MACA, December 1970. Pp. 41. [MACA: S189 Se6b] T
265. ----. "La planificación de la investigación agrícola en Bolivia." In Informe del Seminario Internacional sobre Administración de Instituciones Agropecuarias. Quito: IICA, March 8-12, 1971. Pp. 176-192. [NAL: S540 A2 S4] T
- Historical review of agricultural research.
266. ----. Producciones de la hacienda en el altiplano. La Paz: Editorial Universo, 1967. Pp. 43. [MACA: HD1866 C3p] T
- Written in 1954, and published as a sort of nostalgic look back at the pre-1952 days, and the hacendados who "created highland agriculture." Claims to accept the reforms of 1952-53, but not the "marxists" who have caused divisions between hacendados and campesinos. Apart from the polemics, there are some detailed descriptions of production techniques.
267. CARRANZA FERNÁNDEZ, Mario. "Dos reformas agrarias, Rumania y Bolivia: Comparación y paralelismo." Cuaderno No. 6. La Paz: Centro de Estudios de Reforma Agraria Integral, 1970. [LTC Files Bo 3 16] T Y/E
- "A brief comparison of the Rumanian agrarian reform (part of a Socialist revolution) and the Bolivian reform (which 'popularized capitalism' among the peasantry)" [LTC, Agr.Ref.L.A.-Bibliog.].

268. ----. Estudio de caso en el valle bajo de Cochabamba; Caramarca, Parotani e Itapaya. 2nd ed. La Paz: Servicio Nacional de Reforma Agraria, 1972. Pp. 175. [LTC Files Bo 3 C18]
- " . . . differs from [CAMACHO SAA 1970] in emphasis and conclusion, but based on the same data base. Discusses (1) the formation of haciendas, their labor and land tenure systems, and production; (2) the 1952 revolution and the agrarian reform; (3) the evolving postreform agrarian structure; (4) changes in production and marketing; (5) social and cultural change; and (6) political changes" [LTC, Agr.Ref.L.A.-Bibliog.].
269. CARRASCO, Antonio. "Crédito agrícola." Foro Agrónomico (La Paz, Ministerio de Agricultura) 1 (1963): 68-72. [MACA: S189 F6]
- Brief history and description of agricultural credit, particularly in the Santa Cruz area. Very little credit is available outside the Banco Agrícola Boliviano, and the total amount is far short of needs.
270. CARTER, William E. "The Ambiguity of Reform: Highland Bolivian Peasants and Their Land." Ph.D. Dissertation, Columbia University, New York, 1963. Pp. 264.
- " 'A comparison of man-land relationships in free communities and recently liberated estates of highland Bolivia,' based on fourteen months of field work in 1960/61 in the Ingavi Province, southwest of La Paz. Related community structure to land use, and both of these to attitudes and values. Stresses the similarity of patterns observed in free communities and ex-haciendas, and the continuity of behavior and land use patterns despite the reform of legal institutions" [LTC, Agr.Ref.L.A.-Bibliog.].
271. ----. Aymara Communities and the Bolivian Agrarian Reform. University of Florida Monographs in the Social Sciences, No. 24. Gainesville: University of Florida Press, 1965.
- " . . . discusses the prereform hacienda tribute system and the traditions of mutual aid encountered in Indian communities. Notes that the land reform has had a significant impact on the formal aspects of rural life, but that, in fact, the Indian remains in a decidedly subordinate, impoverished position" [LTC, Agr.Ref.L.A.-Bibliog.].
272. ----. Bolivia: A Profile. New York: Praeger Publishers, 1971. Pp. 176. [NAL: F3308 C3]
273. ----. "Revolution and the Agrarian Sector." In Beyond the Revolution: Bolivia Since 1952, ed. James M. MALLOY and Richard S. THORN. Pittsburgh: University of Pittsburgh Press, 1971. Pp. 233-268. [U.S. Dept. State: F3326 M24]
- "The impediments placed before the [agrarian reform] council by

the MNR government testify to the essentially political nature of the agrarian reform movement. The MNR seemed more interested in altering the basis of political power than in modernizing Bolivia's agriculture." [CARTER]. In the Altiplano, Yungas, and Valleys, land parcels granted to campesinos were quite small, except on the more remote properties where the population was not too dense and land was available. In the southern Valleys, movement away from subsistence farming has been slow, and there is considerable inequality in campesino holdings.

274. CARVAJAL GUTIÉRRES, José. Épocas de aplicación de fertilizantes con diferentes niveles en el cultivo del trigo. Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1969. Pp. 77. [UMSS-FCA]

T

For Bolivia to be self-sufficient in wheat (a goal accepted by the author), yields will have to increase from 450 kg./ha. nationally (and 800 in Cochabamba) to 1200. In studies at the "La Tamborada" experiment station, there was a response to fertilizer for only one of 12 varieties, with 50-50-0 providing the best results when applied during the last two stages of plant growth. Planting time was a very important factor in fertilizer response. Use of nitrogen alone did not give good results.

275. CASTAÑÓN PASQUEL, José. Informe al Gobierno de Bolivia sobre las actividades de extensión agrícola y desarrollo agropecuario dentro del Plan Nacional de Desarrollo Rural. Report No. AT 2477. Rome: FAG, 1968. Pp. 24. [MACA: HT421 C32i]

T

The productivity of agriculture and livestock has not changed since the agrarian reform because of continued reliance on traditional methods. Argues that 400,000 families would have to be moved from the Altiplano to colonization areas to give those remaining on the Altiplano sufficient land to support themselves. The extension service is poorly funded and technically weak. Recommendations are rather general.

276. CASTILLO AVEDAÑO, Walter del. Compilación legal de la reforma agraria en Bolivia. La Paz: Editorial Fénix, 1955. Pp. 336. [MACA: HD1306 B6 C3; LTC: HD482 A25]

T Y/E

277. CASTRO VILLANUEVA, J. Análisis económico de la recaudación de tasas forestales, 1963-1972 y sus deficiencias. La Paz: MACA, 1974. Pp. 16. [MACA: SD559 C3a]

T

278. CATON, Douglas D.; NELSON, Michael; and SLEEPER, Louis. Methodology and Analysis: Bolivian Agricultural Production and Marketing Loan. La Paz: [USAID/Bolivia]: December 18, 1970. Pp. 83. [Available in MACA/RDD; MACA: HD1866 C32m]

Cr M T Y/E

Concludes that the Central Bank offers the best possibility for managing a coordinated production and marketing credit program and the management of marketing facilities. Recommends that the loan be concentrated geographically and limited to 2-3 commodities.

279. Centro de Investigación y Mejoramiento de la Caña de Azúcar (CIMCA-CNECA). Conmonitorio: Campaña 1974-75. Saavedra, 1976. T
- Control of pests and diseases; climatological information; and review of experiments with new varieties.
280. Centro de Rehabilitación de Niños Desnutridos de Montero. "Estudio nutricional en niños escolares." Montero, 1973. N
281. Centro Interamericano de Reforma Agraria. "Investigación del proceso de difusión en la introducción del cultivo de pastos en el altiplano boliviano." Mimeografiado No. 24. Lima: IICA, 1965. [LTC Files Bo 64.7 C2] T
- "An important methodological piece outlining processes for introducing pasture cultivation in the Bolivian Altiplano. Stresses that the success of the agrarian reform depends on efficient communication of ideas" [LTC, Agr.Ref.L.A.-Bibliog.].
282. Centro para el Desarrollo Social y Económico (DESEC). Estudio zonal del Chapare. La Paz, 1969. M T Y/E
283. ----. Informe preparado a solicitud del Banco Interamericano de Desarrollo. La Paz, August 1972. Pp. 49. [MACA/RDD] M T Y/E
- DESEC has helped establish 200 base-level campesino organizations and 8 regional organizations. Technical assistance is provided in crop production and livestock. Successes are claimed in production and marketing increases, but the supporting data are of a very general nature. DESEC has also helped mobilize savings.
284. ----. Los tres valles centrales de Cochabamba. Informe preparado para la Asociación Bélgica Bolivia. Typewritten. La Paz, 1964. Pp. 138. [ERS/FDCD] M N T Y/E
- Survey of 33 representative communities to obtain socio-economic data, production and marketing data, and data on land tenure and agricultural resources. Considerable attention is also given to campesino organizations, which, it is argued, should be strengthened.
285. CEVALLOS TOVAR, W. El trigo. Cochabamba: UMSS, 1967. Pp. 62. [MACA: SB191 W5 C4t] T
- A manual for wheat farmers.
286. CHACÓN CUELLAR, Luís. "Jardines y huertas de hortalizas: Informe de actividades correspondiente al año 1967-1968." Mimeographed. Estación Experimental Ganadera. Pp. 7. [MACA: S189 Ex72 P3j] T
- Brief report on experiments with various garden vegetables.

287. CHARDÓN, Carlos E., and LEIGH, Stephen. Desarrollo de la industria azucarera en el departamento de Santa Cruz. La Paz: Ministerio de Economía Nacional and Comisión Nacional de Estudio de la Caña y del Azúcar, 1959. Pp. 109 + Annexes. [MACA: TP379 B6 Ch3d]

T

Agricultural potential of the Santa Cruz area is great, and settlement there can help relieve unemployment. Present slash-and-burn method of land clearing is harmful to the soil. Premature cutting of cane results in significant loss in sugar content. Other inefficient practices are described and recommendations provided.

288. CHÁVEZ A., Luís F. "Comercialización de cereales." Agricultura Boliviana 4 (1966): 40-42.

M

289. ----. El cultivo del maní en las provincias Florida y Vallegrande del Departamento de Santa Cruz. Typewritten. La Paz: Ministerio de Agricultura, 1962. Pp. 20. [MACA: HD9235 P3 Ch3c]

M

T

The country's only oil processing plant has suffered from a lack of domestically produced raw materials. Interviews were conducted with 184 peanut farmers in the two provinces. Prices paid to farmers fluctuate sharply and are lowest when the harvesting season begins. Prices received are lower the greater the distance is from farm to market. Problems include: need for credit to help finance relatively high production costs compared with other crops; lack of certified seed; insecure markets; preparation of land by animal power; and lack of technical assistance.

290. ----. Investigación especial sobre las superficies cultivadas y producción de arroz, caña y algodón, y producción nacional de azúcar en el area norte del Departamento de Santa Cruz, año agrícola 1963-64. La Paz: Ministerio de Agricultura, Ganadería y Colonización, January 1965. Pp. 47. [MACA: HD9066 Ch3i]

Cr M

T

Recommends more credit and more rational price and marketing policies for rice.

291. CHENG, R.S.H. Informe anual sobre el experimento de maní en la zona de Santa Cruz. La Paz: Misión Técnica Agrícola de la República de China, 1974. Pp. 36. [MACA: SB351.P3 Ch4i]

T

292. CHICHESTER, C.O. Report of Analysis of Yucca Dehydration Plant, Santa Cruz, Bolivia, September 12-17, 1964. Bethesda, Maryland: National Institutes of Health/Interdepartmental Committee on Nutrition for National Defense, 1964. [ERS/FDCD]

N

293. CHIRIKOS, Thomas N. et al. Human Resources in Bolivia: Problems, Planning, and Policy. Columbus: Center for Human Resources, Ohio State University, April 1971. [MACA/RDD]

Y/E

Comprehensive manpower survey and projections of manpower re-

quirements to 1980. In educational policy, first priority should go to increased system efficiency; retention rates are very low at all levels, and correcting this situation requires improvements in instruction. Numerous educational reforms are recommended. Recommendations are also made for human resource planning (including health policies) and for labor market institutions.

294. CHIRINOS AGUILAR, L. "Estudio socio-económico de una comunidad originaria del altiplano: Posibilidades de colectivizar callpas de aynocas con el fin de obtener unidades económicas de producción." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1975. Pp. 93. [UMSS-FCA] M T Y/E
295. CHRISTENSEN, Rondo A. An Economic Review of the Comité Boliviano de Fomento Lanero (COMBOFLA). USU Series 11/71. La Paz, June 1971. Pp. 44. M
- COMBOFLA, the national wool and hair marketing organization, has helped increase the incomes of up to 30,000 Altiplano families. But it has not been provided with equity capital and operating funds for development work, and operates at a loss. Buying and selling of sheep's wool and alpaca and llama fleeces are profitable, but its yarn plant and the sale of alpaca yarn operate at losses since quality is too low and price too high to compete in world markets.
296. CHUECA SOTOMAYOR, Carlos. "Estudio de financiación agropecuaria y riego del area de Patacamaya." Typewritten. La Paz, 1967. 20 l. [UN/B] Cr T
297. ----. Informe de consultoria sobre la producción agropecuaria y las organizaciones campesinas. La Paz: Servicio Nacional de Desarrollo de la Comunidad, 1974. Pp. 91 + Annexes. [MACA: HT421 C5i; MACA/RDD] Cr M T Y/E
- Argues that national and international programs of assistance to campesinos are generally weak, uncoordinated with national agricultural policy, and lacking in continuity. In effect, campesinos are simply not considered an important factor in the process of national development. Recommends establishment of a system of production cooperatives. Also recommends establishment of "Centros Agrarios Sociales Cooperativos" to improve marketing.
298. CLARK, Evelyn Kiatipoff. "Agrarian Reform and Developmental Change in Parotani, Bolivia." Ph.D. Dissertation, Indiana University, 1970. Pp. 263. [SAIG] Cr M N T Y/E
- "An analysis of the socio-economic impact of land reform in the ex-hacienda Parotani in the lower Cochabamba valley. Discusses changing consumption and saving patterns; increased economic independence; rising levels of living and expectations; migration, and other aspects of what the author considers quite significant development since 1953" [LTC, Agr.Ref.L.A.-Bibliog.].

299. CLARK, Ronald J. "Agrarian Reform: Bolivia." In Land Reform in Latin America: Issues and Cases, ed. Peter DORNER. Land Economics Monographs, No. 3. Madison: Land Economics for the Land Tenure Center, University of Wisconsin, 1971. Pp. 129-164. Cr M N T Y/E

" . . . Author finds that (1) the effects of land reform cannot be readily separated from those of the larger revolutionary process; (2) the pace of land redistribution exceeded the capacity of the Ministry of Agriculture to grant titles; (3) significant peasant integration into the national society has occurred; (4) considerable institutional and jurisdictional confusion exists; (5) land reform is no panacea; (6) expectations have exceeded administrative and technical capabilities; (7) considerable readjustment of marketing channels has occurred; (8) land is in short supply in various parts of the country relative to the needs of land reform; (9) peasant organizations need direct access to government; (10) colonization is relatively marginal to the overall process; and (11) many traits of prereform society continue to prevail" [LTC, Agr.Ref.L.A.-Bibliog.].

300. ----. Estudio de tenencia de la tierra y procedimientos de titulación de la tierra en las áreas ganaderas del oriente boliviano. La Paz, 1972. Pp. 81. [LTC: HD1265 B62 072] T Y/E

"Discusses land tenure, agrarian reform, titling procedures, and conflicts arising from inadequate titles. Presents recommendations for improving land tenure systems and facilitating titling" [LTC, Agr.Ref.L.A.-Bibliog.].

301. ----. "Land-Holding Structure and Land Conflicts in Bolivia's Lowland Cattle Regions." Inter-American Economic Affairs 28, No. 2 (Autumn 1974): 15-38. Cr M T Y/E

Both Bolivian government policy and the types of loans made available by international agencies are tending to create a tenure structure dominated by large farms. Agricultural labor finds it difficult to obtain work contracts paid in cash or manufactured goods; without a contract, subsistence farming, supplemented by other employment, is necessary, and it is thus difficult to accumulate savings to enter cattle ranching.

302. ----. "Land Reform and Peasant Market Participation on the Northern Highlands of Bolivia," Land Economics 44 (May 1968): 153-172. Cr M N T Y/E

"According to the author, 'a direct result of the land reform has been the greater participation by peasants in a money economy and in a greater number of regional and national markets.' [This] increases demand for manufactured consumption goods and thus 'may give a significant impetus to economic development over the coming years.' A detailed analysis of prereform land tenure, labor systems, and market organization is presented, revealing that 'obligations and outright prohibitions as to what

the peasant could produce or sell, was the main cause for the low level of his participation in markets on a cash basis.' A very important effect of land reform was the reorganization of marketing and the elimination of landlord dominated channels. This precipitated a temporary reduction in produce marketed in the prereform channels, but there is no indication that land reform per se caused a drop in total agricultural production. A drought caused a production decline in 1956" [LTC, Agr.Ref. L.A.-Bibliog.].

303. ----. "Land Reform in Bolivia." In Land Reform in Bolivia, Ecuador, and Peru. Vol. VI of A.I.D. Spring Review of Land Reform. 2nd ed. Washington, D.C., 1970. Cr M N T Y/E

" . . . Concludes that (1) the rate of land redistribution exceeds the effective capacity of the government; (2) too much is expected from the land reform; (3) confusion and inefficiency should be expected; (4) market channels have altered considerably; (5) not even minimal service needs of the rural sector have been met by the government; (6) land is not available for all potential beneficiaries; (7) the peasant unions should be strengthened; (8) colonization is too slow to absorb the natural increase of population; (9) the land reform has not eradicated customary labor-tenure systems; (10) ex-landowners continue to exercise considerable influence at the local level" [LTC, Agr. Ref.L.A.-Bibliog.].

304. ----. "Problems and Conflicts over Land Ownership in Bolivia," Inter-American Economic Affairs 22, No. 4 (Spring 1969): 3-18. T Y/E

" . . . Interviews were conducted with agrarian judges, lawyers, peasant union leaders and members, and landlords in ten different regional field sites [P]roblems and conflicts . . . [are] caused largely by the fact that the pace of land redistribution (including invasions) has exceeded the pace of title transfer. Conflicts exist between ex-landowners and new owners, and between the new landowners themselves. According to the author, values, attitudes, and behavior patterns have not changed quickly enough among the older peasant families, and landowners have worked through these to 'divide, intimidate, and exploit communities.' The author's principal conclusions are that (1) land title distribution and enforcement should have been carried out more rapidly; (2) all lands of the large landholders should have been expropriated; and (3) the role of peasant unions on a local level has been important" [LTC, Agr. Ref.L.A. Bibliog.].

305. ----. "Reforma agraria e integración campesina en la economía boliviana." Estudios Andinos 1, No. 3 (1970): 5-22. M T Y/E

"Investigates the complex alterations in commercial channels linking rural producers to the urban markets brought about by

the agrarian reform. Failure to recognize the change in marketing patterns has caused an exaggeration of the supposed decline in production after reform. Many provincial markets have grown and new ones have appeared. Peasants participate more directly in the marketing of their products than they did before the revolution and agrarian reform. According to the author, this had an important social as well as economic impact on the peasantry" [LTC, Agr.Ref.L.A.-Bibliog.].

306. CLAROS ENCINOS, H. "Determinación de las eficacias de conducción del 'Sistema Nacional de Riego Nº. 1'--Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1973. Pp. 89. [UMSS-FCA] T
307. CLAIRE IRIARTE, Victor Tito. "Comportamiento de siete variedades de maíz utilizando tecnología tradicional e innovada." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1973. Pp. 77. [UMSS-FCA] T Y/E
- Yields can be increased by 230% with improved land preparation, fertilizer (80 kg./ha. of nitrogen and 20 of phosphorus), improved seeds, and application of insecticides and herbicides. With traditional practices, 8 hectares are required to earn \$b. 1000 per month; with improved practices only 2 hectares would be needed.
308. CLAIRE VALLEJO, J.G. "Fertilizantes químicos en el cultivo de la papa." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1970. Pp. 83. [UMSS-FCA] T
309. CLEMENT, Lloyd A. Costo de producción por producto por Departamento. USU Series 25/73. La Paz, March 1973. Pp. 7. [SAIG] T Y/E
- Summary cost and net income data for wheat, sugarcane, coffee, pyrethrum, corn, rice, potatoes, soybeans, peanuts, sunflowers, cotton, oranges, bananas, and pineapples.
310. CLYBURN, Lloyd et al. Bolivian Livestock and Meat Marketing Situation and Prospects for Its Development. La Paz: Banco Agrícola de Bolivia, 1970. Pp. 129. [MACA: HD9424 C4g] M T

Bolivia achieved self-sufficiency in beef production in 1968-69. Expected international loans should triple production by 1981. Cattle are generally healthy but unit production is far below optimum because of poor management and the low nutritional value of tropical range grasses. Market quality is low because cattle are slaughtered at light weights with no sanitary control, chilling, or grading. Annual growth of domestic demand is expected to be only 3.25-3.50%, leaving a substantial margin for export in the coming years. To enter potential markets in Peru and northern Chile, the authors argue that "Bolivia must be able to commit a definite quantity of cattle equal in quality to those supplied by Argentina." Transport and marketing improvements are needed.

311. COCHRANE, Thomas T. An Initial Assessment of the Land Use Potential of the Central Piedmont and the Santa Cruz Regions of Tropical Bolivia. La Paz: MBAT and Ministerio de Agricultura, 1968. Pp. 106. [MACA: S599 B6 C6ai] T
- Summary of soil conditions, climate, vegetation, and crop potential for each of the sub-zones in the two regions.
312. ----. Land Systems Map of Central Tropical Bolivia. Santa Cruz, Bolivia: Ministry of Agriculture, Bolivia, and British Agricultural Mission, 1967. Pp. 25. [Available in MACA/RDD] T
- The region has been divided into 40 sub-regions, for which notes are provided on geology, topography, soils, vegetation, climate, important agricultural characteristics, and agricultural and livestock potential. Cattle potential is significant. Natural resource conservation, especially for forests, is needed. The most promising colonization prospects are north and east of Santa Cruz. Suggestions are made for a carefully located road grid to open up the area.
313. ----. "Sugerencias para el cultivo de caña de azúcar en el distrito de Santa Cruz, Bolivia." Santa Cruz: MBAT, August 1971. T
314. ----. Water Balance Tables Calculated Using Data from Seven Tropical Meteorological Stations in Tropical Bolivia with a Table of Provisional Water-Holding Capacities with Different Combinations of Soil and Tropical Crops. La Paz: MBAT and Ministerio de Agricultura, 1968. Pp. 12 + Tables. [Available in MACA/RDD] T
- Data are for Central Piedmont and Santa Cruz regions.
315. ---- et al. El potencial agrícola del uso de la tierra de Bolivia: Un mapa de sistemas de tierra. La Paz: Editorial Don Bosco, 1973. Pp. 826. [Available in MACA/RDD] T
- Detailed description of soils, climate, vegetation, hydrology, etc. for the 10 major land systems, which in turn are further subdivided into more than 200 sub-zones.
316. CODEX (ed.). Seminario: Crisis, cambio, desarrollo, vocación y destino de Cochabamba. 4 vols. La Paz: CODEX, 1976. Pp. 219 + 155 and 75 + 203 + 266. [MACA: Cochabamba] T Y/E
- Papers presented at a 1975 seminar on development in Cochabamba, presumably designed to pressure the national government into financially supporting the area as a "development pole." Vol. IV is devoted to agriculture; specifically, there are papers on irrigation, soils, wheat, corn, fruits, milk, potatoes, and sheep.

317. COHEN, Sanford. "Assessment of the Employment Situation and Problems of Manpower Planning." Report to the Secretaría Nacional de Planificación y Coordinación. Mimeographed. La Paz, July 1963. Y/E
- Report by an ILO advisor arguing that there was "massive under-employment" in Bolivia.
318. COLE, Gillian. Informe de la encuesta sobre consumo de leche en Santa Cruz. Santa Cruz: MBAT, September 1966. Pp. 10. [CIAT: MBAT File No. 37] N
319. COLQUE GUTIERREZ, E. "Ensayo de adaptación y rendimiento de trigo y cebada en el Departamento de Oruro." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1965. Pp. 71. [UMSS-FCA] T
320. Comisión Nacional de Estudio de la Caña y del Azúcar. Las cifras en las proyecciones azucareras--Bolivia. Santa Cruz, May 1972. T
321. COMITAS, Lambros. "Educación y estratificación social en Bolivia." América Indígena 28 (July 1968): 631-651. T
- In the field of education, little has been done since 1952 to alter social stratification. Rural education tends to suppress traditional cultural elements considered "dysfunctional" to rural life, but nothing is offered in return. Since education focuses on rural life, children are given few options for social mobility and non-rural occupations.
322. Comité Departamental de Obras Públicas de Santa Cruz. Diagnóstico de los siguientes cultivos: Algodón, caña de azúcar, soya, arroz y trigo. Santa Cruz, 1975. T
323. ----. Estudios de mano de obra calificada en el Departamento de Santa Cruz. Santa Cruz, 1975. [C.00.PP.] T
324. ----. Macro-diagnóstico Regional, Santa Cruz. Santa Cruz, August 1975. Pp. 106. [C.00.PP.: 06.05.093] M T Y/E
- Historical view of development in the region; brief descriptions of various economic sectors; population; migration, and urbanization; characteristics and problems of various subregions.
325. ----. Tecnología del cultivo de la piña para el Departamento de Santa Cruz. Santa Cruz, 1974. Pp. 17. [C.00.PP.] T
326. Comité Interamericano de Desarrollo Agrícola. Inventory of Information Basic to the Planning of Agricultural Development in Latin America--Bolivia. Washington, D.C.: Organization of American States, 1963. [ERS/FDCD] M T Y/E

327. Compañía Industrial de Aceites La Boliviana, S.A. Application for AID Financing on Edible Oil Milling Project in Bolivia. 3 vols. Santa Cruz, 1964. Pp. 105. [ERS/FDCD] M T Y/E
- Economic justification for an oilcrop processing plant serving the Okinawan colonists in the Santa Cruz area.
328. CORDERO V., Angel. "The Effect of Land Clearing on Soil Fertility in the Tropical Region of Santa Cruz." M.S. Thesis, University of Florida, Gainesville, 1964. [MACA: S607 C6e] T
- Concludes that land clearing by hand or by burning is less expensive than clearing with a bulldozer or root rake; moreover, there is less reduction in soil fertility if clearing is done by hand or by burning.
329. ----. "Ensayos de abonos químicos en el cultivo de maíz." In Informe Anual de las Estaciones Experimentales de Bolivia, 1958. La Paz: SAI. Pp. 52-54. T
330. ----. "Ensayos de abonos químicos en tomate." In Informe Anual de las Estaciones Experimentales de Bolivia, 1958. La Paz: SAI. Pp. 40-41. T
331. ----. "Posibilidades para lograr el autobastecimiento nacional en arroz." Foro Agronómico (La Paz, Ministerio de Agricultura) 1 (1963): 28-34. [MACA: S189 F6] M T Y/E
- Once domestic needs are met (expected very soon), competition among rice producers will increase, and only the most efficient producers will survive. Optimum quality can be obtained only with irrigation. In the Santa Cruz area, 60% of rice is grown by traditional methods using 105 man-days of labor. Mechanized cultivation requires only 5 man-days. Land area devoted to rice should not be increased.
332. CORONEL B.C., Abel. "Desarrollo de áreas rurales." In Informe del Seminario Regional sobre Aspectos Socio-Económicos de la Investigación. Maracay, Venezuela: IICA, April 10-13, 1973. Pp. D-1-1, 1-14. [NAL: S542 V4 S42 1973] Cr M T
- "Peasant technology is governed by religious dates and customs, by presumed relationships between observed physical phenomena and yields obtained . . ." [CORONEL]. Accordingly, technical assistance cannot be based on the notion that behavior is determined primarily by economic factors. Proposes the formation of integrated technical assistance teams dealing with production, community development, home economics, credit, and marketing. Proposes cooperative farming to escape the technological limitations of the minifundio.
333. Corporación de Desarrollo de Cochabamba (CORDECO). Análisis socio-económico y programa de acción inmediata. Cochabamba, 1975. [MACA: HC184 C6 C6a] M T Y/E

A "pre-diagnóstico" of social and economic conditions. To combat agricultural stagnation, the main short-run emphasis, it is argued, should be on irrigation and education. The long-run solution is said to be formation of production cooperatives based on irrigation districts, elimination of the minifundio, and transfer of surplus labor to other sectors of the economy.

334. ----. Análisis socioeconómico, Zona Chapare. Cochabamba, 1973. [CORDECO; missing] T Y/E

335. ----. [Estudio de flujo de productos agropecuarios.] Cochabamba: In process. [2 tables available in SAIG] M

336. ----. Política y filosofía del desarrollo: Programa de acción inmediata. Cochabamba, 1975. [CORDECO] M T

Emphasis is more on manufacturing and infrastructure than on agriculture, though processing of agricultural products from the Chapare (yuca, plátanos, and citrus fruits) is mentioned. Irrigation is seen to be of vital importance for agriculture. CORDECO wishes to promote and organize agricultural production cooperatives, institute pilot research programs for new crops, and improve agricultural marketing. It will also promote migration of surplus labor to new agricultural zones, especially in the Chapare.

337. ----. Reconocimiento de las condiciones existentes: Informe del viaje al Chapare tropical. Cochabamba, 1974. [CORDECO] T

Report of a short "get-acquainted" trip. Contains brief observations on specific crops and livestock produced in the region. Optimistically claims that coca production will be "very easily replaced" by plátanos, yuca, and citrus fruits, profitable crops with assured markets. Critical of the Instituto Nacional de Colonización for irrational distribution of land and failure to provide technical assistance in cultivation.

338. Corporación Gestora del Proyecto Abapó-Izozog (CORGEPAI). Informe de labores. La Paz, Annual. [INC] T

Contains results of agricultural research in the project area.

339. ----. Estación Experimental "6 de Agosto." Resumen de los aspectos relevantes del proyecto Abapó-Izozog. Santa Cruz, Provincia Cordillera, 1975. Pp. 13. [MACA: SB111 C64r] T

Pre-feasibility studies for the project began in 1963 but were suspended in 1964 for lack of funds. With U.N. funds, studies were resumed in 1971 and feasibility studies were expected to be completed by 1976. Import substitution in wheat is a major objective. Cotton, soybeans, and sorghum are also expected to be major crops. The prefeasibility study indicated an internal rate of return of 15.9%.

340. Corporación Regional de Desarrollo de La Paz (CORDEPAZ). Proyecto de desarrollo rural en el altiplano septentrional. Preparado para el Programa de Cooperación F.A.O./B.I.R.F. La Paz, 1972. M T Y/E
- The proposed project would involve drilling 20 wells to provide irrigation water to 4,000 campesino families in the northern Altiplano. Importation of Brown Swiss cattle is also contemplated. Net income for the 4,000 families would rise from \$b. 26.2 million to \$b. 74.2 million by the 17th year of the project.
341. COSÍO M., Carlos. La educación agrícola en Bolivia. Publicación Miscelanea No. 73. Lima: IICA, 1971. Pp. 189. [MACA: S189 In2 P96 73; NAL: 28 In83P No. 3] T
- Detailed evaluation of and recommendations for agricultural education at all levels. Notes that effective demand for agricultural specialists, a function largely of government policies, has been far less than projected by the Planning Board in 1961. Thus supply has been more than adequate. But the "ideal" demand is much higher than the present effective demand.
342. ----. Fundamentos de la universidad agraria. La Paz: Editorial Los Amigos del Libro, 1967. Pp. 57. [NAL: S539 B6 C6] T
- Proposes the transformation of the agriculture faculty at the University of San Simón in Cochabamba into a separate agricultural university.
343. CRAVIOTTO, J., and BOLTON, J. Informe sobre las posibilidades de desarrollar un programa ampliado de nutrición en la región altiplanica de los Andes de Bolivia. La Paz. Pp. 36 + Annexes. [MACA: TX551 B6 C7i] N
344. CRESPO VIDAL, Fabian. Costos de producción de trigo en los Valles de Cochabamba. Boletín No. 9. San Benito: Estación Experimental de San Benito, 1974. Pp. 8. [MACA: S189 Ex72 S32b 9] T Y/E
- Cost of production tables for traditional, improved traditional, and mechanized/irrigated farming.
345. CRIST, Raymond E., and NISSLY, Charles M. East from the Andes: Pioneer Settlements in the South American Heartland. Gainesville: University of Florida Press, 1973. Pp. 125-154 on Bolivia. [NAL: HD576 C74] M T Y/E
- Review of various studies of colonization efforts. Argues that "many of Bolivia's colonists achieve only a scant increase in the level of living over what they enjoyed in their place of origin." Also notes that "lack of funds, lack of education in cooperative methods, even dishonesty in the management of funds, have all aided in discrediting the cooperative movement in much of the Bolivian Oriente."

346. CROSSLEY, J. Colin. "Santa Cruz at the Cross-Roads: A Study of Development in Eastern Bolivia," Tijdschrift voor Economische en Sociales Geografie 52 (August-September 1961): 197-206, 230-241. M T
- Construction of the Santa Cruz-Cochabamba has increased agricultural development prospects for the Santa Cruz area. Sugarcane, corn, rice, yucca, and bananas can be successfully grown with traditional methods of shifting agriculture. If more modern methods are to be used, careful attention will have to be paid to soils and crop rotation practices (e.g., with peanuts or soybeans). Migration to the Oriente will not solve the overpopulation problem in the Altiplano and Valles. Cooperative traditions of highland Indians suggest that the outlook for cooperatives in Santa Cruz is good.
347. CUELLAR VACA, Oscar Abel. "Estudio preliminar de habitación mecánica de un sartenejal." Thesis for Degree of Ingeniero Agrónomo, Universidad Gabriel René Moreno, Santa Cruz, 1976. T
348. DAINES, Spencer H. "End-of-Tour Report, [April 18, 1967-July 14, 1969]." USU Series 1/70. La Paz, July 1969. Pp. 17 + 27 tables. [AID Ref. No. BL631.7 D133] T
- Report by an irrigation specialist. Presents results of irrigation and fertilizer trials for quinoa, broad beans, potatoes, barley, and forage crops (alfalfa, tall fescue). Recommends an inventory of resources available for irrigation and a long-term range management program to improve the water yield of the watersheds.
349. DANDLER-HANHART, Jorge. "Local Group, Community, and Nation: A Study of Changing Structure in Ucureña, Bolivia (1935-52)." M.A. Thesis, University of Wisconsin, Madison, 1967. M T Y/E
- "An analysis of social change and factors which led up to the birth of the Bolivian agrarian reform movement in the village of Ucureña. Relates local change to events and conditions at the regional and national levels" [LTC, Agr.Ref.L.A.-Bibliog.].
350. ----. El sindicalismo campesino en Bolivia: los cambios estructurales en Ucureña. Serie Antropología Social, No. 11. México: Instituto Indigenista Interamericano, 1969. Pp. 197. (Revised, Spanish version of the author's M.S. Thesis, University of Wisconsin, Madison, 1967.) [NAL: HT421 D3] T
- " . . . Relates local change to events and conditions at the regional and national levels" [LTC, Agr.Ref.L.A.-Bibliog.]. Emphasizes the role of the local rural sindicato and the local school, and the campesino leadership, in uniting the community with the national society while altering patron-client relationships.

351. Daniel, Mann, Johnson and Mendenhall; Stanford Research Institute; and Alan M. Voorhees and Associates, Inc. Estudio integral de los transportes en Bolivia. 8 vols. La Paz, May 1968. [MACA: HE232 D3e] M T
- Comprehensive transport sector survey with implications for agricultural marketing. Notes that the lack of adequate storage facilities results in sharp price fluctuations for agricultural products. Discusses agricultural production possibilities in various parts of the country.
352. D'ANTONIO, Arthur, and CLEMENT, Lloyd A. Costs and Returns of Producing Coca from the Chapare and Yungas. USU Series 22/73. La Paz, May 1973. Pp. 10. T Y/E
- Estimates the value, volume, and profitability of coca production. Coca was found to account for 30-50 percent of total farm income. [See also study by KELLER and AITKEN.]
353. DAVIES, D.M.D. Informe al Gobierno de Bolivia sobre la caoba de exportación. Report No. AT 2432. Rome: FAO, 1967. Pp. 13. [MACA: SD297 M2 D3i] T*
354. DÁVILA GUTTIÉREZ, R. "Estimación del uso consuntivo con el método de Blaney-Criddle y requerimientos de riego en el valle alto de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1973. Pp. 73. [UMSS-FCA] T
355. D'AVIS S., Julio Alberto. Los errores administrativos de la reforma agraria de Bolivia. Cuadernos sobre Derecho y Ciencias Sociales, No. 51, Universidad Mayor de San Simón. Cochabamba: Imprenta Universitaria, 1959. Pp. 30. [LTC File Bo 3 D1L] T Y/E
356. DAVIÚ GEMIO, Carlos. "Estudio integral de aceites y grasas (Información preliminar)." Typewritten. La Paz, October 1969. Pp. 64. [MACA: HD9490 D3e] M T
- Discusses imports of edible oils and fats by Bolivia and government plans for import substitution. Discusses existing and planned processing plants, providing detailed cost and technical information.
357. ----, and OLAZABAL DELGADO, Jorge. "Estudio económico y estadístico del grupo de cereales en Bolivia." Typewritten. La Paz: Ministerio de Agricultura, 1969. Pp. 61 + Annexes. [MACA: HD9030 D3e] T
- Production, yield, and trade data for 8 cereals. Total production of cereals was stagnant from 1957/58 to 1966/67. Yields first declined by about 10%, then rose back to 1957/58 levels. Use of improved seeds is urged. Problems relating to each crop are discussed.

358. DEERE, Carmen. Bolivia: A Survey of Agricultural Credit. La Paz: Cr USAID/Bolivia, 1971. Pp. 60. [MACA: HG2051 B6 D4b]

Public and private banks made an estimated \$24 million in new agricultural credit in 1970, compared with \$8 million in 1965. Roughly half the credit provided in 1970 came from external sources, and \$17 million was provided through the Banco Agrícola and the Banco Central. Marketing credit was more important than production credit. Only \$2.5 million went for capital investment. Virtually no credit has been provided for import substitution crops; \$4.5 million financed exports. Credit provided by retailers has benefited medium- and large-scale farmers, but only a handful of small farmers. Additional foreign financing is recommended.

359. ----. "Estimates of [Bolivian] Agricultural Production (1958-1970)." Mimeographed. La Paz: USAID/Bolivia, May 1970. [ERS/FDCD]

A joint effort by the Ministry of Agriculture and USAID/Bolivia to bring together available data, for which a valuable critique is provided. Tables are presented for 17 crops and for miscellaneous fruits and vegetables.

360. DELGADILLO, Guido, and STEVENS, James W. Fattening Sheep on Improved Pastures in Santa Cruz. USU Series 17/74. La Paz, 1973. Pp. 15. [SAIG]

"Sheep taken from the Altiplano to the Santa Cruz area gain well on pasture . . . [I]t was profitable to control weeds with Lab-Lab [pasture] and sheep" [DELGADILLO and STEVENS]. It may also be profitable to use Lab-Lab with cattle, but further studies are needed. Cost and profitability data are provided.

361. DELGADO, Oscar. "Estudio de caso del nor altiplano: Pocoata, Cantón Ancoraimas." 1st draft, incomplete (Ch. 6-8, 12 are missing). N.p.: n.publ., 1966. [LTC: HD489 L2 D25]

". . . discusses prereform tenure and labor systems, the process of agrarian reform, changes in the agrarian structure, persistence of the traditional agricultural systems, social and political aspects of agrarian reform, and community and agricultural development programs." [LTC, Agr.Ref.L.A.-Bibliog.].

362. DENEVAN, William Maxfield. "The Aboriginal Settlement of the Llanos de Mojos: A Seasonally Inundated Savanna in Northeastern Bolivia." Ph.D. Dissertation, University of California, Berkeley, 1963.

Before the Spanish conquest, the Llanos de Mojos supported a population several times the present number, as indigenous people adapted to seasonal flooding by building earthworks to provide dry ground for farming, homesites, and communication. The drained fields, it is argued, are "the only major example of sa-

vanna cultivation in South America Using similar techniques, it may be possible to once again farm and repopulate the Llanos de Mojos" [Diss. Abstracts].

363. ----. The Aboriginal Cultural Geography of the Llanos de Mojos of Bolivia. Los Angeles, 1966. T
 Published version of the author's dissertation.
364. ----. "Cattle Ranching in the Mojos Savannas of Northeastern Bolivia." American Association of Pacific Coast Geographers Yearbook 25 (1963): 37-44. M T
365. DERPSH, Rolf W. Estudio sobre erosión hídrica en la región integrada del Departamento de Santa Cruz y medidas prácticas para su control. Santa Cruz: C.OO.PP., 1974. [C.OO.PP.] T
366. DEWEY, Wade G. An Agronomic Survey of the Possibilities for Increasing Wheat Production in Bolivia. USU Series 6/66. La Paz, February 1966. Pp. 28. T
 Recommends mechanization wherever possible, implying larger farm units. If Bolivia is to be self-sufficient in wheat, a large irrigated, mechanized area will be required. New varieties need to be introduced, wheat producers should be insulated from the market effects of imported wheat, and the government needs to develop a coordinated wheat program.
367. ----; McALLISTER, Devere; and GARDNER, B. Delworth. Analysis of the Wheat and Flour Business in Bolivia. USU Series 6/66. La Paz, May 1966. Pp. irregular. [SAIG] M T
 Research is needed to develop high-yielding hard wheat varieties. Production costs are relatively high and profitability relatively low. Self-sufficiency is not possible in the foreseeable future.
368. DÍEZ de MEDINA, Mario. Estudio social de las áreas cañeras del norte de Santa Cruz. Santa Cruz: Comisión Nacional para el Estudio de la Caña y del Azúcar, 1975. Pp. 182+. Cr M N T Y/E
 Study by a sociologist of 245 cane farmers, most of them with relatively small plots. Contains data on population, housing, education, health, and nutrition. Also discusses social structure, work satisfaction, etc. While the great majority were either content (56%) or very content (25%) with the type of work they were engaged in, there was a strong desire for children to acquire enough education to prepare them for urban jobs. Truly cooperative work effort was absent, though 77% felt that organizing cooperatives was the best way to improve their position. The author fears that small cane farmers may disappear as mechanization proceeds.

369. DI NATALE E., Remo. Revolución agraria en Bolivia. Cochabamba: Editorial Universitaria, 1953. Pp. 153. [MACA: HD1306 B6 D5] T Y/E
370. DION, H.B.. Agriculture in the Altiplano of Bolivia. FAO Development Paper No. 4. Washington: FAO, 1950. [ERS/FDCD] Cr M T Y/E
 Recommends measures for increasing livestock production in the Altiplano.
371. DONOSO, Oscar. Liquidación del latifundio gamonal. La Paz: Editorial La Paz, 1953. Pp. 84. [LTC Files Bo 3 D65] T Y/E
 "A discussion of the traditional hacienda (or latifundio gamonal) and its relation to the social and economic backwardness of the country, and to the oppression of the Indian. Notes that the existing (prereform) systems are unsatisfactory for both socialism and liberal capitalism. Thus, the agrarian reform is not, per se, an anticapitalist revolution" [LTC, Agr. Ref.L.A.-Bibliog.].
372. DORSEY, Joseph F. "The Bolivian Fertilizer Market and the Goal of Domestic Production." Paper for Agricultural Economics 541. Madison: University of Wisconsin, April 30, 1974. Pp. 29 + Tables. [MACA/RDD] Cr T
 If demand increases rapidly, proposed fertilizer plants would be able to operate at close to capacity, keeping costs at reasonable levels. Much of the increased demand will have to come from small farmers, who already use 90% of fertilizer inputs. This requires greater availability of credit and technical assistance, completion of land titling, promotion, and favorable domestic price relationships.
373. ----. A Case Study of Ex-Hacienda Toralapa in the Tirague Region of the Upper Cochabamba Valley. Research Paper No. 65. Madison, Wisconsin: Land Tenure Center, University of Wisconsin--Madison, June 1975. [AID Reference Center: BL333.32 D718a] Cr M N T Y/E
 Study of an area previously investigated by PEINADO S. (1969). Despite the short growing season and the danger of frost, which limits the amount of crop diversification, the author finds that "dramatic changes have taken place in agricultural production, land ownership, distribution of income and wealth, and the acculturation and integration of Bolivian campesinos into the national society." Land under cultivation has more than tripled and yields have increased. The most significant technological change is the use of fertilizers and pesticides, used almost exclusively with potatoes.
374. ----. A Case Study of the Lower Cochabamba Valley: Ex-Haciendas Parotani and Caramarca. Research Paper No. 64. Madison, Wisconsin: Land Tenure Center, University of Wisconsin--Madison, June 1975. [AID Reference Center: BL333.32 D718] Cr M N T Y/E
 Study of an area previously investigated by CAMACHO SAA (1970).

The author finds that "dramatic increases took place in family farm income and agricultural production, despite the almost total lack of credit, extension, and other services." Early post-reform attempts by the government to increase production through "cooperatives" actually amounted to forced labor and delayed the shift to the high-value, non-traditional crops that have been the basis for rising incomes in the area. This experience has made it difficult for any subsequent cooperative efforts in production and marketing to succeed.

375. DOTT, Harry E.M. Plagas de insectos que afectan a los cítricos y su control en Bolivia. Boletín Entomológico No. 4. Cochabamba: MBAT and MACA, September 1971. Pp. 34. [MACA: Cochabamba] T
- Bulletin written for citrus farmers describing types of pests and making recommendations for their control. Proper care and maintenance of the trees is often more important than the use of insecticides.
376. DOWNING, C.M. "Informe sobre mecanización y aperos agrícolas (preliminar)." Typewritten. La Paz, November 11, 1964. [MACA: S675 D6i] [Subsequently published as an "Informe no oficial," FAO, 1965] T
- According to the author, use of machinery shows signs of a strong recovery following a decline in machinery use after 1952.
377. DOZIER, Craig L. Land Development and Colonization in Latin America: Case Studies of Peru, Bolivia, and Mexico. New York: Frederick A. Praeger, Publishers, 1969. Cr M T Y/E
- Pp. 117-152 discuss the Alto Beni project. ". . . stress[es] the importance of good transportation, careful selection of colonists, and intelligent choice of crops" [LTC, Agr.Ref.L.A.-Bibliog.].
378. DRAPER, C.I. My Observations on Production and Marketing of Meat from the Altiplano. USU Series 11/73. La Paz, November 1972. Pp. 10. [SAIG] M T
- Excessive livestock numbers make pasture improvement difficult. Increasing meat markets will be difficult because of the low quality. In the Altiplano, the same meat production could probably be obtained from 30-40% fewer animals using more pasture and forage. This would also improve wool quality.
379. ----. Report on Production of Marketable Products from Sheep, Llama, and Alpaca. USU Series 26/73. La Paz, 1973. Pp. 13. [SAIG] M T
- Production of cured processed meat products is possible. Sheep meat is best suited for sausage-type products. About 25% of llama and alpaca meat can be made into ham-type products. Other products and by-products are possible. Marketing problems should be studied. The number of animals grazing should be reduced.

380. DUKE, James A.; AULIK, David; and PLOWMAN, Timothy. "Nutritional Value of Coca (*Erythroxylum Coca*)." Botanical Museum Leaflets, Harvard University 24, No. 6 (October 31, 1975): 113-118. [NAL: 451 H262] N
- Coca leaves have a high nutritional value; but the nutritional amounts actually ingested are not known, since the entire leaf is not actually swallowed. Coca also contains toxic alkaloids and may harbor pesticide residues.
381. DULÁ NAVARRETTE, José. "Plan nacional de desarrollo rural: Programa de riegos comunales, 1964-65, Bolivia." Rome: FAO, 1966. Pp. 11. [UN/B] T
382. ----. Riego del cultivo de alfalfa en el valle de Cochabamba, Bolivia. Cochabamba: Facultad de Ciencias Agronómicas, Universidad de San Simón, and FAO, 1963. Pp. 11. [MACA: SB205 A4 D9r; missing] T
383. ----, and FERNÁNDEZ BUSTOS, F. Programa de riegos comunales. La Paz: Dirección Nacional de Desarrollo Rural, 1965. Pp. 172 + Appendices. [MACA: S615 D9p] T
- Data on soils, climate, water resources. Project cost estimates.
384. DURAN GONZÁLEZ, N. "Ensayo de rendimiento de remolachas y col forrajeras." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1970. Pp. 31. [UMSS-FCA] T
385. DURAN SUAZO, M. El cultivo de forrajeras en el Altiplano. La Paz: Banco Agrícola de Bolivia, 1974. Pp. 22. [MACA: SB123 D7c] T
386. ECHANDI, Eddie et al. Crop Protection in Brazil, Uruguay, Bolivia, Ecuador and Dominican Republic: A Multi-disciplinary Study Team Report. Prepared for AID by the University of California at Berkeley and North Carolina State University under Contract No. AID/csd-3296. N.p.: n. publ., October-December 1972. Pp. 68. [NAL: SB605 L37 C7] T
- There is a scarcity of qualified research scientists, and research funds are inadequate. Salaries are low, physical facilities are poor (especially in Bolivia and the Dominican Republic), and libraries are weak. Extension programs should be strengthened with U.S. assistance.
387. "The Economic Development of Bolivia." Economic Bulletin for Latin America 2, No. 2 (1957): 19-72. [ERS/FDCD] Cr M T Y/E
- Preliminary and summary version of a study published separately in 1957.

388. "The Economic Policy of Bolivia in 1952-64." Economic Bulletin for Latin America 12, No. 2 (1967): 61-89. M T
- Pp. 73-80 describe and evaluate the agrarian reform program. Although production declines have been attributed to the agrarian reform, import data suggest that there have been no supply shortages, except for wheat, and wheat production was discouraged by price and exchange policy, not by land redistribution. There has been, though, little technical progress in the Altiplano and Valles. This will require more rapid issuance of land titles and the mobilization of resources to improve yields. Production increases in Santa Cruz can be attributed to transportation improvements and credit; the agrarian reform had no significant impact in this area.
389. EDELMANN, A.T. "Colonization in Bolivia: Progress and Prospects." Inter-American Economic Affairs 20, No. 4 (Spring 1967): 39-54. Cr M T Y/E
- Rather optimistic view of the present and future of colonization in the Chapare, Alto Beni, and other lowland regions. No systematic comparison of the costs and benefits of spontaneous (Chapare) vs. directed (Alto Beni) colonization. Marketing problems are reported for both areas.
390. EDER, George Jackson. Inflation and Development in Latin America: A Case Study of Inflation and Stabilization in Bolivia. Michigan International Business Studies, No. 8. Ann Arbor: University of Michigan, 1968. Pp. 822. [U.S. Dept. State: HG825 E3] M
- Attributes the success of the stabilization program to the adoption of a balanced budget. Supports a "free market economy" and is highly critical of Bolivian government intervention in the economy. Argues that the recovery of Bolivian agriculture from 1956 to 1964 is attributable to the removal of agricultural price controls and import subsidies.
391. ELLIS, Stephen B. Economics of Feed Lot Operations in Bolivia (Cattle). USU Series 11/69. [La Paz, 1969]. Pp. 4. [SAIG] T
- Data on costs and net returns.
392. ----. Livestock and Related Subjects, Bolivia. USU Series 6/69. La Paz, March 1969. Pp. 13. M T
- Study of possible uses of crop by-products suggests that the best possible outlet is using wheat bran, etc., as livestock feed.
393. EPP, Mark James. "Establishing New Agricultural Communities in the Tropical Lowlands: The San Julian Project in Bolivia." Master's Degree Action Paper, Cornell University, July 1975. [MACA/RDD]. M T Y/E

394. ERASMUS, Charles J. "Agrarian vs. Land Reform: Three Latin American Countries." In Peasants in the Modern World, ed. Philip K. BOCK. Albuquerque: University of New Mexico Press, 1969. Pp. 9-31. Cr M T Y/E
- " . . . argues . . . that land redistribution by itself does not eliminate rural poverty or lead to 'cumulative rural changes.' Broad agrarian development projects and particularly capitalization are seen as prerequisites for rural progress, which will in turn stimulate rural participation in political development" [LTC, Agr.Ref.L.A.-Bibliog.].
395. ----. "Upper Limits of the Peasantry and Agrarian Reform: Bolivia, Venezuela, and Mexico Compared." Ethnology 6 (October 1967): 349-380. M T Y/E
- " . . . concludes that land redistribution (removing existing forms of economic exploitation) is not sufficient to transform the peasantry into a dynamic commercially oriented more prosperous class. Without changes in technology, markets, and transport, new forms of exploitation will evolve, and the land reform will fail to 'depeasantize' its beneficiaries" [LTC, Agr.Ref.L.A.-Bibliog.].
396. Escuela Evangélica de Enfermería de La Paz, and Comité de Salud Pública de Montero. Estudio del estado nutricional en niños de 0-5 años de edad de nivel socio-económico bajo en Montero. August 1970. Pp. 49. [MPS-SP] N
- This study found a high degree of malnutrition among children in low-income families in Montero.
397. ESQUEF, Lydio O.P. de. "Dietary Habits of the Peasant of the Bolivian Highlands." FAO Nutrition Newsletter 10, No. 2 (April-June 1972): 16-20. N
398. ----. Encuestas alimentarias en Pillapi, Humamarca, Molino Pampa y Mojona. CEP Report No. 11. Rome: FAO, 1963. Pp. 127. [Accession No. 60054-63-MR] N
399. ----. Informe al Gobierno de Bolivia sobre un programa integrado de nutrición aplicada en el altiplano. FAO Report No. 1920. Rome: FAO, 1964. Pp. 26. [MACA: S401.F7 R23] N
- Surveys conducted under the author's direction found deficiencies in animal proteins, vitamins A and C, and calcium. Urges programs to encourage raising of small animals (rabbits and chickens) and fruits and vegetables adaptable to the climate of the Altiplano. Nutrition education should be supported by the Ministries of Education, Rural Affairs, and Public Health.

400. ---- et al. Encuesta alimentaria piloto en la base de desarrollo rural de Otavi, Departamento de Potosí. La Paz: Ministerio de Salud Pública, 1961. Pp. 63 + Appendices. [MACA: TX551.B6 G7] N
- In Otavi and Molino, there were serious deficiencies in animal proteins, calcium, vitamin A, riboflavin, and vitamin C; the diet was sufficient in total proteins, iron, thiamin, niacin, and (barely) in total calories. In Molino Pampa and Mojona, there were serious deficiencies in calories, animal proteins, calcium, vitamin A, riboflavin, and vitamin C; the diet was amply sufficient in iron, thiamin, and niacin, but barely sufficient in total proteins.
401. EZELL, Paul H. "Man and Land in Bolivia: The Hacienda Orurillo Case," Ethnology 13, Nos. 3-4 (Summer-Fall 1966): 123-144. T
- This isolated community was quite receptive to change, having successfully solved, by itself, a problem of economic raiding by nearby communities in Peru.
402. FAHRLANDER, Daniel C. Proposal for the Mass Production of a Stationary Wheat Threshing Machine in Bolivia. USU Series 3/70. La Paz, 1970. Pp. 9. T
- Nuts and bolts.
403. FAISON, Edmund W.J. Status of Food Marketing. La Paz: Centro Boliviano de Productividad Industrial, 1967. Pp. 206. [MACA/RDD] M
- Brief description of marketing processes for 98 commodities.
404. FARNSWORTH, William F.; GROVER, Ben; and LONG, Max. Bolivia: White Flour or Whole Wheat Flour? USU Series 20/74. La Paz, February 1974. N
- From an economic point of view, Bolivia would receive a greater value for each metric ton of wheat imported if it were milled as whole wheat flour and made into whole wheat bread without producing any white flour and bran. [This] would result in . . . a potential annual advantage of . . . US\$ 11,571,264.00" [F-G-L]. Bran is now being used as a protein feed supplement, but could be replaced by cottonseed meal or soybean meal, which have 2-3 times as much protein as bran and should be cheaper to transport. Whole wheat flour is significantly superior to white flour in nutrients (comparative data are given).
405. ----, and LONG, Max. An Assessment of Present and Projected Wheat Production in Bolivia. USU Series 27/74. La Paz, April 1974. M N T
- Discusses land availability, and actual and potential wheat production in the traditional (high valleys) and new (lowlands) wheat producing areas. By 1985, 96% of estimated national flour consumption could be satisfied by local production if whole wheat flour rather than white flour were produced, and if technically feasible wheat production increases were achieved.

406. ----, and MICHAELSEN, Leon. Recommendations for Preparing the Bolivian University System to Serve Rural Development Needs in Bolivia. USU Series 9/74. La Paz, 1973. Pp. 15+. [SAIG] T
- Training of agronomists and veterinarians is geared more to teaching careers than to meeting rural needs. The ability to handle production problems or livestock management is weak.
407. Federación Departamental de Empresarios Privados, Santa Cruz, Bolivia. Estadísticas económicas y sociales del departamento de Santa Cruz. Santa Cruz, 1975. Pp. 150. [SAIG] Cr M T Y/E
- Contains a brief economic history of the Santa Cruz area; national accounts and other macroeconomic data, disaggregated by sector and Department; population data; a list of colonization projects in Bolivia; education and health data; agricultural production data; data on manufacturing, finance, and trade; fiscal data; and statistics on infrastructure.
408. FEHMERLING, G.B. Survey of the Food Industry in Bolivia. La Paz: USAID/Bolivia, December 1961. Pp. 37. [ERS/FDCD] M T
- Except for citrus fruits, fruit and vegetable processing will expand only slowly until a greater volume is available at lower cost; this will require technical assistance in production and marketing. The outlook for oil processing is good if enough seeds can be supplied to permit the existing plant to operate at capacity and if oil cake is used in animal feeding programs. Coffee growers should organize cooperatively to improve quality and to sell in large volume on world markets.
409. FERNÁNDEZ BACA, Saúl. "Alpaca Raising in the High Andes." World Animal Review 14 (1975): 1-8. [NAL: SF191 W6] Cr M T
- "Improvements in alpaca raising and greater economic returns can be achieved through in-depth research on the biology and pathology of this species and through application of the knowledge thus gained by dissemination of the findings Government attention to such vital aspects as the marketing of alpaca fibre and meat and the granting of credit to alpaca raisers will play a decisive role in the improvement of their production" [FERNÁNDEZ BACA].
410. FERNÁNDEZ BUSTOS, F. "Las características agroclimáticas del valle de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1961. Pp. 81. [UMSS-FCA; missing] T
411. FERNÁNDEZ DÍAZ, Aurelio et al. Estudio sobre las causas de morosidad de los préstamos. La Paz: Banco Agrícola de Bolivia, June 1971. Cr

412. FERNÁNDEZ MEDINA, J.A. "Ensayo de rendimiento de 160 variedades de trigo probadas en la Estación Experimental 'La Tamborada.'" Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1967. Pp. 88. [UMSS-FCA] T
413. FERRAGUT, Casto. Informe al Gobierno de Bolivia sobre reforma agraria. FAO Report No. 1856. Rome: FAO, 1964. Pp. 69. [MACA: HD1306 B6 F4i; LTC Files Bo 3 F2i; ERS/FDCD] Cr M T Y/E
- The minifundia system created since 1952 is just as inimical to development as the latifundia system it replaced. Large estates should have been left intact and worked cooperatively, supported by credit and technical assistance. The problems experienced by the agrarian reform program are due to the lack of (1) financial resources and (2) skilled administrative and technical manpower. The government has done very little to increase agricultural productivity. Spontaneous colonization should be encouraged and assisted; minimum farm size should be 15-25 hectares. Agrarian reform objectives cannot be achieved without credit, which must be accompanied by technical assistance.
414. ----. Principales características de las colonias agrícolas de Bolivia y sugerencias para una política de colonización. La Paz: Dirección de Instituciones y Servicios Rurales, July 1961. Pp. 52. [LTC Files Bo17 F2; MACA: HD492 F4; ERS/FDCD] Cr M T Y/E
- Review of 7 directed colonization programs, with comparative data. Concludes that colonization areas should be selected with greater care, as should colonists. More encouragement should be given to spontaneous colonization: even though technical assistance and credit should be provided, it would be cheaper than directed programs. Minimum farm size should be 15-25 has. Assistance to the Altiplano is also recommended.
415. ----. "La reforma agraria boliviana." Reformas Agrarias en América Latina: Procesos y perspectivas, ed. Oscar DELGADO. México: Fondo de Cultura Económica, 1965. Pp. 446-467. Cr M T Y/E
- Extracted from FERRAGUT, Informe, 1964.
416. ----. "La reforma agraria boliviana: Sus antecedentes, fundamentos, aplicación, y resultados," Revista Interamericana de Ciencias Sociales 2, No. 1 (1963): 78-151. Cr M T Y/E
- Detailed study by an FAO adviser.
417. FERREE, Paul J. "Cotton Is King among Crops in Bolivia's Boom Economy." Foreign Agriculture 12, No. 24 (June 17, 1974): 6-7. Cr M T
- Uncleared land can be bought for \$30-60 per hectare; cleared land for \$200-500. Most clearing is done with heavy mechanized equipment, takes 6-10 hours, and costs \$150-300 depending on

the vegetation. A few weeks after clearing the land is burned and then is ready for plowing and planting. Credit for cotton is readily available (at about 13%, with some supervision), yields are high, and profits are good. Most harvesting is by hand, and wages of \$2.00 per 100 pounds (about \$2.75 per day including all costs) are almost double those paid in 1973. Mechanical harvesting is increasing, though, as are fertilizer use and aerial spraying.

418. FERREL ANEIVA, R. "Uso y manejo de agua en la Estación Experimental de San Benito." Thesis for Degree of Ingeniero Agrónomo, 1974. Pp. 101. [UMSS-FCA] T
419. FIAT Concord S.A.I.C. Oficina de Estudios para la Colaboración Económica Internacional. Bolivia: Síntesis económica y financiera, No. 2. Buenos Aires: December 1969. Pp. 119. [NAL: HCT83 B63] M T Y/E
- General review and analysis of the economy. Argues that the stagnation of the agricultural sector is due in large part to the minifundia created by the agrarian reform; this has prevented the use of modern methods of production and has kept productivity low. Unfavorable price policies and poor transport have also discouraged production increases.
420. FIFER, J. Valerie. Bolivia: Land, Location, and Politics since 1825. London: Cambridge University Press, 1972. [U.S. Dept. State: F3341 B7 F5] Cr M T Y/E
421. ----. "Bolivia's Pioneer Fringe." Geographical Review 57 (January 1967): 1-23. M Y/E
- Detailed description of transportation networks and a discussion of colonization in the Caranavi-Alto Beni and Santa Cruz areas. Argues that efficient transportation is the key to successful development of the Oriente.
422. ----. "Colonization in Bolivia." Geographical Review 63 (July 1973): 393-395. Y/E
- A brief review of the literature, particularly SCH00P 1970 (a German-language publication).
423. FLETCHER, G.R. "Santa Cruz: A Study of Economic Growth in Eastern Bolivia." Inter-American Economic Affairs 29, No. 2 (Autumn 1975): 23-41. Cr M T Y/E
- Historical overview of the region's development. Argues that production suffered in the mid-1950s because of uncertainties created by the agrarian reform (despite few expropriations in the area), lack of credit, an overvalued currency, and PL 480 imports. The completion of the Santa Cruz-Cochabamba highway, colonization, favorable price and exchange policy, and U.S. as-

sistance resulted in a recovery in the late 1950s. This recovery continued into the 1960s, stimulated in the late 1960s by substantially increased public and private credit. Production was also stimulated by the October 1972 devaluation and the increase in agricultural prices imposed by the government in 1974. Although some short-term problems have been caused by unfavorable world demand trends and transport deficiencies, the long-term outlook is good.

424. FLORES, Edmundo. "Un año de reforma agraria en Bolivia." Trimestre Económico 23 (April-June 1956): 241-261. M T Y/E

" . . . discusses important changes brought about by the application of the 1953 agrarian reform law . . . , including land transfers, changes in politics and social structure, increases in the cultivated area and production, changing output, migration to the selva, redistribution of income, and the 'psychological liberation' of the peasant" [LTC, Agr.Ref.L.A.-Bibliog.].

425. ----. "Land Reform in Bolivia." Land Economics 30 (May 1954): 112-124. T Y/E

"According to the author, given the 'vegetative civilization' of Bolivia in 1952, land reform was synonymous with economic development. Outlines the principal agrarian problems and the main provisions of the agrarian reform law of 1953" [LTC, Agr. Ref.L.A.-Bibliog.].

426. ----. "Taraco: Monografía de un latifundio del altiplano boliviano," Trimestre Económico 22 (Apr 1-June 1955): 209-229. M T Y/E

"According to the author, the hacienda studied is representative of those in the Bolivian Altiplano. Discusses land tenure, living conditions, agricultural production, forest exploitation, social structure, and other features of the hacienda. A final section deals with the impact of land reform, including changes in the local power structure brought about by the elimination of the patrón" [LTC, Agr.Ref.L.A.-Bibliog.].

427. FLORES ARROYO, Jorge J. "Estudio de la factibilidad económica de la colonización espontánea del area de Caranavi." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1968. Pp. 73. [UMSS-FCA] T Y/E

Benefit/cost analysis shows that the area is not suited for agricultural colonization. Given the accelerating erosion there, colonization should never have been permitted. Rice, corn, and bananas can be produced only on a subsistence basis, and only coffee is a profitable commercial crop. Colonists should be given a chance to move elsewhere. The area does, however, have some potential for forestry.

428. Food and Agriculture Organisation of the United Nations. Bolivia: Dairy Development Scheme. Document No. IDS/72/5/2. Rome: FAO, 1972. Pp. 60. [Accession No. 20526-72-WM] T
429. ----. Bolivia: Outline of Integrated Dairy Development Plan for Bolivia. Project No. AGA-UNDP/SF BOL/21. Rome: FAO, 1972. Pp. 9. [Accession No. 20555-72-WS] T
430. ----. Estudio de caso de Bolivia: Industrias forestales mecánicas. Seminario FAO/Finlandia sobre aserrío y otras industrias forestales mecánicas en la cuenca del Amazonas, Belem, Brazil, 11 November 1974. Rome: FAO, 1974. Pp. 9. [Accession No. 28057-74-WS] T
431. ----. Facultad de Ciencias Agronómicas, Universidad Mayor de San Simón, Cochabamba, Bolivia: Informe Final. Rome: FAO, 1967. Pp. 129. [MACA: HD1411 F6f 12] T
- Summarizes the assistance provided by an 8-member team to the agronomy faculty at the university and recommends measures for further strengthening the faculty.
432. ----. Mejoramiento de la producción agrícola en el altiplano-- Bolivia: Resultados y recomendaciones del proyecto. Informe Final. Document No. AGO: DP/68/521. Rome: FAO, 1974. Pp. 56. [MACA: HD1866 F6m, missing; ERS/FDCD] T Y/E
433. ----. Observations on Andean Food Patterns in Bolivia, Ecuador, and Peru. Rome: FAO, June 1975. Pp. 24. [Accession No. 29631-75-WS] N
434. ----. Situación de la piscicultura en Bolivia. Simposio FAO/CARPAS sobre acuicultura en América Latina, Montevideo, Uruguay, 26 November 1974. Rome: FAO, 1974. Pp. 3. [Accession No. 27992-74-WM] T
435. FORTÚN, Julia Elena. "Tecnificación del campesino." América Indígena 32 (July-September 1972): 713-716. T
- Argues that government programs in education, health, and technical assistance in production have lacked coordination and continuity. Their effectiveness has been minimal because the change agents employed are outsiders to the communities they are supposed to assist, and they spend relatively little time there. Proposes that direct change agents be indigenous people who will live in the communities in which they will be working.
436. FREEMAN, Roger A. "Bolivia: A Case Study in Foreign Aid." The Freeman (December 1957): 34-36. M T
- Report by a U.S. government advisor to Bolivia describing the production and marketing disruptions of the mid-1950s (cited in STOKES 1959).

437. FRICKE, Bruno. "Kolonisation am Chimoré." Cochabamba, 1966. Unpublished. T Y/E
438. FUENTES QUIROGA, G. "Ensayo comparativo de veinte y tres variedades de alfalfa (*Medicago sativa*), en el valle de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1974. Pp. 91. [UMSS-FCA] T
439. FUENTES VALDIVIA, U.E. "Estudio de adaptación de forrajes en el valle de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1964. Pp. 127. [UMSS-FCA] T
440. GAINSBORG, José Minor. "Evaluación de tres métodos de selección para incrementar el rendimiento en la variedad de maíz (*zea maíz*) Tuxpeño, planta baja." Thesis for Degree of Ingeniero Agrónomo, Universidad Gabriel René Moreno, 1975. T
441. GALLEGUILLOS F., Adolfo. Aspectos sociales de la colonización en Bolivia. La Paz: Instituto Nacional de Colonización, 1974. Pp. 14. [MACA: HD492 G3a] M Y/E
- A summary of population and migration data by the head of the Department of Social Development of the National Colonization Institute (INC), who argues that colonization has been, on balance, clearly successful. The belief that highland campesinos could not adapt to the tropics, it is said, has been disproved. Studies have shown that the main reason for abandonment has been poor transport. Colonists are adopting new technology, notwithstanding shortages of credit, technical assistance, and other obstacles. Recommends that future colonization be semi-directed and based on the formation of rural villages where infrastructure and a sense of community can be developed. No data on colonists' incomes.
442. GANDARILLAS, Humberto. El cultivo de la papa. Boletín Experimental No. 4. La Paz: SAI, 1961. Pp. 24. [MACA: S189 Se6B; SAIG] T
- Discussion of soils, fertilizers, seeds, pests, and diseases.
443. ----. "Ensayos con abonos químicos en el cultivo de arroz." In Informe Anual de las Estaciones Experimentales de Bolivia, 1957. Pp. 37. T
- Application of fertilizers to clay soils resulted in a slight decline in yields.
444. ----, and BUSTILLO G., Rodolfo. El estado y el movimiento cooperativo agrícola nacional. La Paz: Ministerio de Agricultura, January 1970. Pp. 19. [SAIG] M T
- Argues that the government should promote the formation of production and marketing cooperatives to give campesinos an oppor-

tunity to improve their economic position. Existing individual landholdings, it is argued, are too small for efficient, modern agriculture.

445. ----, and TORRICO A., Armando. "Cultivos y rendimientos en colonias." La Paz: SAI, 1959. 4 1. [MACA: HD1866 G3; missing] T
446. GANS, A.R. Report on Banco Agrícola de Bolivia under AID/GOB-511-51. La Paz, March 1968. Pp. 52. [MACA: HG2051 B6 G3r] Cr
- Discusses reforms in the Banco Agrícola since 1963 and proposes additional administrative and financial changes. Argues that training of extension agents should have high priority.
447. GARCÍA, Antonio. "Agrarian Reform and Social Development in Bolivia." In Agrarian Problems and Peasant Movements in Latin America, ed. Rodolfo STAVENHAGEN. Garden City, New York: Doubleday and Company, Anchor Books, 1970. Pp. 301-346. (Published in Spanish in Trimestre Económico 31 [July-September 1964]: 339-387.) [LTC: HD320.5 Z63] M T Y/E
- "Detailed, sympathetic analysis of Bolivia's agrarian reform by an expert on cooperatives who was the FAO representative in Bolivia in recent years" [LTC, Agr.Ref.L.A.-Bibliog.].
448. ----. "La reforma agraria y el desarrollo social." In Reformas agrarias en la América Latina: Procesos y perspectivas, ed. Oscar DELGADO. México: Fondo de Cultura Económica, 1965. Pp. 403-446. [LTC: HD320.5 D4] M T Y/E
- "Discusses the prereform agrarian structure, and the impact of the land reform on the latifundio, minifundio, and Indian community. Concludes that the principal failures of the reform are many: (1) inadequate state intervention; (2) lack of non-agricultural growth; (3) loss of a revolutionary perspective; (4) poor planning; (5) slow land redistribution; (6) nondynamic colonization efforts; (7) administrative chaos; (8) lack of clear policies; and (9) failure to abolish antisocial forms of land and labor exploitation" [LTC, Agr.Ref.L.A.-Bibliog.].
449. ----. "La reforma agraria y el desarrollo social de Bolivia." Trimestre Económico 31 (July-September 1964): 339-387. Cr M T Y/E
450. ----. "Los sindicatos en el esquema de revolución nacional: El sindicalismo en la experiencia boliviana de nacionalización y desarrollo." Trimestre Económico 33 (October-December 1966): 597-629. M T Y/E
451. GARCÍA, Raúl Alfonso. Diez años de reforma agraria en Bolivia, 1953-1963. La Paz: Dirección Nacional de Informaciones, 1963. [MACA: HD1306 B6 G3; LTC: HD486 G3] T
- "Enthusiastic government report on progress in agrarian reform . . . --4,852,955 hectares distributed to 151,435 families;

statistics on titles given out by zones and years" [LTC, Agr. Ref.L.A.-Bibliog.].

452. GARCÍA M., Walter. "Suelos y abonos." Estación Experimental Agrícola de los Llanos Boletín Informativo 3 (March 1964): 50-54. [MACA: SB189 Ex72 Sa12B] T
- Argues that land clearance by the slash-and-burn method may be superior to other methods for sugar production in that it better conserves organic material. The statistical results, however, are not entirely clear.
453. GARDNER, B. Delworth. Agricultural Price Policy in Bolivia. USU Series 8/75. La Paz, 1974. Pp. 78. M Y/E
- Detailed description of agricultural price controls. The author finds that they are diverse and largely ineffective. The government lacks the necessary capital, storage facilities, and producer confidence.
454. ----. Prospects for a Successful Wheat Program in Bolivia. USU Series 2/69. La Paz, June 1968. M T Y/E
- Wheat production using the Coposu or Mexican dwarf varieties is very profitable, while use of criollo seed is at best marginal. With improved seeds, yields can double and returns per hectare can be 84-114 percent above costs. Fertilizer use can double yields regardless of variety, with returns averaging 100-166 percent above costs. With improved seeds and, especially, fertilizer, average wheat profits per hectare exceed those of corn in many areas. Adoption of the proposed wheat program could save \$80.7 million in foreign exchange over the 10-year period. Details of seed and fertilizer trials are provided. High price paid for Coposu by Cochabamba mills results in good profits and encourages increased production.
455. ----. A Reevaluation of the Wheat Program after Two Years. USU Series 2/71. La Paz, 1970. Pp. 36. M T
- Promising developments have occurred in program/policy structure, seed dissemination, fertilization, and profitable disposal of by-products by the mills. Problem areas include: pricing, storage, campesino marketing, coordination of the domestic wheat program with wheat and flour imports, inter-agency coordination, and provision of technical services. Wheat prospects are good in Santa Cruz, especially during the winter season, when it can be double-cropped with rice or cotton. If future studies determine that trucking services are not competitive, cooperatives should be organized.

456. GIANELLA, Julio F. Informe sobre desarrollo agrícola en Bolivia. Proyecto Regional PNUD/OIT/FAO. Document No. RLA/69/657. La Paz and Lima, 1974. Cr M T Y/E
457. GIBLER, John W. The Bolivian Wheat Program: A Review and Evaluation. USU Series 2/72. La Paz, July 1971. Pp. 11. T
 "The Santa Cruz area offers by far the most promising zone for commercial wheat production" [GIBLER].
458. ----. The Bolivian Wheat Program, Santa Cruz: A Review and Evaluation, July 1972. USU Series 1/73. La Paz, 1972. Pp. 8. T Y/E
 Comments on various wheat varieties. Since most soils have been cropped only a few years, fertilizers will probably not be economic until after 4-5 years of cropping. Farmers and coop members should help support research and extension. Storage space is adequate, but the market price is not high enough to encourage production. "If the US\$ 14,000,000 spent for wheat imports were instead spent for local production, it would have at least a 2.5 times greater effect" [GIBLER]. (i.e., it would increase demand, domestic output, and employment.)
459. GOINS, John F. Huayculi: Los indios quichua del valle de Cochabamba, Bolivia. Ediciones Especiales, No. 47. México: Instituto Indigenista Interamericano, 1967. Pp. 207. [MACA: E65 In5e] T
 An ethnographic study, undertaken in 1952, of a community in which agriculture was an activity secondary to pottery making. Land was generally plowed by a team of oxen (rented), and implements were few and simple. There was little interest in improving productivity.
460. GOLLNICK, A.F. A Special Study on Meat Processing and Marketing in Bolivia. La Paz: USAID/Bolivia, 1966. [MACA: HD9424 G6s; missing] M T
461. GÓMEZ, Enrique. "Economic Analysis of the Agricultural Sector in Santa Cruz, Bolivia." Ph.D. Dissertation, Utah State University, Logan, 1974. [MACA/RDD] M T Y/E
 Gross agricultural product in Santa Cruz increased by 7.5% annually from 1950 to 1968, and farmers are highly responsive to market incentives. This study uses linear programming to determine the allocation of land among crops that maximizes net income, given various assumptions about prices and government policy.
462. ----, and CLEMENT, Lloyd A. Costos de producción de trigo de invierno: Departamento de Tarija. USU Series 12/73. La Paz, 1972. Pp. 27. T

463. ----, and GARDNER, B. Delworth. "The Economics of Bolivian Self-Sufficiency in Wheat Production," Southern Journal of Agricultural Economics, VIII, No. 1 (July 1976): 79-84. T Y/E
- Concludes that the "costs of subsidy to induce national wheat production self-sufficiency seem to be greater than benefits to wheat growers in the form of producer surplus arising from the subsidy." The costs of the subsidy would be about US\$ 4.2 million, though the figure would be lower if income distribution benefits were thought to exist. If world wheat prices rise, the opportunity cost of supplying domestic rather than imported wheat rises, and subsidies might be cheaper than imports above some (undetermined) world market price. Significant production increases in Bolivia most probably would have to come from the lowlands.
464. GONZÁLES, René. Informativo económico de Bolivia. La Paz: Editorial Los Amigos del Libro, 1974. Pp. 164. [NAL: HC182 G57] T
- Summary of the Bolivian economy for non-specialists.
465. GONZÁLES, Roberto J. "Benchmarks from Which Economic Change Can Be Measured for an Altiplano Community." M.S. Thesis, Utah State University, Logan, 1969. M T Y/E
466. GONZÁLES ESCOBAR, A. "El cultivo de la piña en Bolivia." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1968. Pp. 87. [UMSS-FCA] T
467. GONZÁLES SORIA, Hernán. "Ensayo de rendimiento de siete variedades de maíz bajo dos sistemas de cultivo en San Pablo (Punata)." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1974. Pp. 77. [UMSS-FCA] Cr T Y/E
- Subdivision of lands after the agrarian reform has limited yields and caused subsistence farming to persist. Improved corn varieties can increase yields even with traditional methods of cultivation. With modern practices yields can increase with either traditional or new varieties. The cost of the new technology is high, but so is the payoff. Adoption of new technology by small farmers requires a comprehensive plan of credit and technical assistance similar to the "Plan Puebla" in Mexico.
68. GONZÁLES, F., G. Estudio de caso: Pairumani. 1st draft. N.p.: n. publ., [1967] 183 l. [LTC Files Bo 3 G65] Cr M T Y/E
- "A study of agrarian reform in eleven ex-haciendas and two peasant communities. Three of the haciendas are examined in greater detail. Part 1 discusses the social and economic organization of the ex-haciendas, with special reference to colonato . . . ; part 2 treats the 1952 revolution and the agrarian reform; part 3 examines the changes in land tenure, labor systems, and general rural, social, and economic systems since the agrarian reform" [LTC, Agr.Ref.L.A.-Bibliog.].

469. GOODRICH, Carter. The Economic Transformation of Bolivia. Bulletin No. 34. Ithaca, New York: New York State School of Industrial and Labor Relations, Cornell University, 1955. Pp. 38. [LTC Files Bo 31 G6] T Y/E
- "Highly readable, journalistic account of Bolivia's very exploitative prereform systems of labor and land tenure, and of the revolutionary changes taking place at the time" [LTC, Agr. Ref.L.A.-Bibliog.].
470. GRABER, Kenneth. "Comparación de gastos entre distintos tipos de mecanización en la zona de Santa Cruz, Bolivia." Cochabamba: Iglesia Evangélica Metodista en Bolivia, 1976. [SAIG] T
- Compares costs of cultivation using mule teams, teams of horses, and several types of tractors.
471. GRAEFF, Peter. "The Effects of Continued Landlord Presence in the Bolivian Countryside During the Post-Reform Era: Lessons to be Learned." LTC No. 103. Madison, Wisconsin: Land Tenure Center, University of Wisconsin--Madison, October 1974. Pp. 35. [NAL: HD107 L33] M T Y/E
- Based on studies of 4 of the 10 areas conducted in the late 1960s by the Servicio Nacional de Reforma Agraria, the Comité Interamericano de Desarrollo Agrícola (CIDA), and the Land Tenure Center. It was found that the greater was the continued presence of landlords in the area, the less were the economic and social gains made by campesinos.
472. GREENE, David G. "Revolution and the Rationalization of Reform in Bolivia." Inter-American Economic Affairs 19, No. 3 (Winter 1965): 3-25. Cr M T Y/E
- Agricultural production declined after the agrarian reform and was slow to recover. "The process of expropriation, redistribution and granting of titles has been a model of bureaucratic inefficiency" [GREENE]. It is estimated that more than 8,000 families in the Cochabamba Valley received less than one hectare. Price controls discouraged production and marketing. Most production increases in 1956-59 were in crops (rice, sugar) and in areas (lowlands) not affected by the agrarian reform. Attempts to rationalize agricultural and other policies in the early 1960s may have contributed to President Paz's downfall.
473. GREGG, Russell B. "Agricultural Credit for Sub-Tropical Colonization Project--Chane-Piray and San Julián Areas, Bolivia: An Intensive Review Paper." [La Paz], March 19, 1974. Pp. 11. [SAIG] Cr T
- "Without credit the other infrastructure inputs such as extension service and community development guidance will have limited ef-

fect and the process of elevating the colonists from subsistence to a commercial level of farming as planned will be seriously retarded allowing the slash and burn system of land management to prevail" [GREGG].

474. GREWAL, Tina. "Nutrition Program Development--Bolivia." Memorandum to the USAID/Bolivia Acting Director. La Paz, November 26, 1975. Pp. 15 + Annexes. N
- Memorandum from the CARE field representative outlining alternative strategies for a national nutrition program.
475. GRIFFIN, Jack A. "Report of a Trip to the Río Quimome Irrigation Project in the Santa Cruz District." La Paz: SAI, April 1961. 7 l. [MACA: S599 B6 Gr5i; missing] T
476. ----. "Trip Report on January 30 to February 4 to Cochabamba and Chapare Colonies." La Paz: SAI, March 1961. 19 l. [MACA: S599 B6 Gr5t] T
- Brief descriptions of soils, climate, and crops grown. The area around Villa Tunari was found to be excellent for farming, with good drainage and flat land. Soils in the Alto Chipiriri colony, however, are not heavy enough to hold water for irrigated rice.
477. GROBER K., Isaac. La reforma agraria en Bolivia: Proceso a un proceso. Santiago, Chile: Centro para el Desarrollo Económico y Social de América Latina, 1969. Pp. 189. [LTC: HD486 G76] Y/E
- "Broad, historical study Emphasizes the abolition of servile labor obligations and the changing 'spirit' of the campesinos" [LTC, Agr.Ref.L.A.-Bibliog.].
478. GROVER, Ben L. Alternatives for Planning Supplemental Irrigation Systems of the Santa Cruz Area. USU Series 35/74. La Paz, 1974. Pp. 21. T
- "Production is limited by lack of sufficient available water in more than one half of the years for summer crops and all winter crops if recommended water conservation practices are not used or if irrigation is not available." With water control, "75% of the time there would be adequate water for full crop production" [GROVER].
479. ----. Climate, Soil and Water Relations of Winter Season Wheat, Department of Santa Cruz. USU Series 25/74. La Paz, May 1974. T
- Concludes that winter wheat planted May 1-15 will be a medium-to-successful crop (1000-1500 kg./ha.) 80% of the time if water conservation practices are applied; if not applied the chances of a successful crop (1500 kg./ha. +) are 33%. For crops planted June 1-10 the probability of success (1000-1500 kg./ha.) is 67% with water conservation but only 14% without. Temperate varieties are now being used as there are no tropical wheats at present. The study considers 3 alternative management systems.

480. ----. Erosion and Bolivia's Future. USU Series 31/74. La Paz, 1974. Pp. 9 + 19 photos. T
- "A national program of land use and animal control must be initiated if Bolivia is to reverse the tragic erosion trend which is in progress. The time is late. Much of Bolivia's soil resources have already been lost or seriously damaged. The effects are rapidly involving every part of the country as is evidenced by recent floods in the Beni and Santa Cruz lowlands, and the damages to bridges and roads" [GROVER].
481. ----. Summary of Soil Information on Colonization Locations. USU Series 16/74. La Paz, 1974. Pp. 7. [SAIG] T
- Of the 4 areas studied, Víbora is the least promising for agriculture; Río Quiquibey-Maniqué-San Borja-Rurrenabaque has low quality soils for which fertilizer will be needed to maintain yields; Villamontes is distant from local markets, requires irrigation, and probably should be a special-crop area; and San Julián is one of the more promising areas.
482. ----, and GANDARILLAS, Humberto. El uso de fertilizantes para mejorar la producción de trigo en Bolivia. USU Series 30/74. La Paz, 1974. Pp. 7 + tables. T
- Summaries of research results, providing a basis for recommending fertilizer use in various wheat-growing zones.
483. ----; ZULETA, Lucio; and MANZANO, Amado. Bilinear Response of Wheat to Fertilizer Application. USU Series 7/74. La Paz, October 1973. Pp. 4. T
- The bilinear model (subject to a maximum obtainable yield) simplifies experiments and results in greater economy in fertilizer use than the quadratic model. Results of one test in the Cochabamba area are provided.
484. GUARDIA PEREIRA, Eduardo. "Autobastecimiento de productos lácteos en Bolivia." Tesis de Grado (Economía), UMSS, Cochabamba, 1971. Pp. 41. [UMSS-IESE] M T Y/E
- Adoption of a government-financed program can increase average production per cow from 6.5 liters to 15 liters. An informal comparison of costs and benefits is somewhat confused but suggests a high internal rate of return for the projects. The Planta Industrial de Leche pays low prices to producers in relation to their costs (thus discouraging production) and its profits are probably high; but accounting data for the firm could not be obtained. Improved practices recommended include use of selected alfalfa seed and improved varieties of feed corn, animal health measures, and use of machinery for cultivating forage crops. Agricultural extension and a prohibition of wheat flour imports are also recommended. Project costs are probably considerably underestimated.

485. GUEVARA ARCE, Walter. Plan de política económica de la revolución nacional. Memorandum No. 2. La Paz: Ministerio de Relaciones Exteriores y Culto, 1955. Pp. 201. [MACA: HC181 G8] T
- Pp. 99-128 outlines, very broadly, a proposed program for agriculture. The Altiplano and Valles received relatively little attention.
486. GUIGNABAUDET, Philippe. Informe sobre el piretro. La Paz: Ministerio de Economía Nacional, August 31, 1954. Pp. 61. [UN/B] M T
- Some 3,000-5,000 hectares could be devoted to pyrethrum production. A successful program requires a guaranteed market at fixed prices.
487. GUILLET, David. "Integración sociopolítica de las poblaciones nuevas en Bolivia: Descripción de un caso y discusión." Estudios Andinos 3, No. 1 (1973): 111-128. Cr M T Y/E
- Study of Omereque, a cantón in Campero Province, Department of Cochabamba, which has experienced rapid economic progress since 1952. Although the campesino syndicate played an important role in socioeconomic change in the early post-reform years, it later came to play a role secondary to that of the Community Development Service, the Peace Corps, and other change agents. Omereque has fertile soils, irrigation waters from the Río Mizque, and a favorable rainfall pattern which permits year-round cultivation. These factors have compensated for geographic isolation and poor transport. Major commercial crops are sugar cane, cumin, tomatoes, and anis. Campesinos in the area are risk takers, and success is rewarded with higher social status. A cooperative organized by the Community Development Service obtained a loan, successfully established a retail grocery store, and purchases modern production inputs for its members.
488. GUMUCIO GRANIER, Jorge; MARISCAL GUZMAN, Jaime; and AILLÓN RÍOS, Luz. Estudio regional del noreste boliviano. La Paz: Instituto Boliviano de Estudio y Acción Social, 1966. Pp. 171. [Available in MACA/RDD] N Y/E
- Socio-economic survey of Provincia Vaca Díez, Departamento del Beni.
489. GUMUCIO REYES, Alfonso. "El desarrollo de la industria azucarera en Bolivia (1949-1960): Su importancia económica y el ahorro de divisas para el país." Mimeographed. La Paz: Comisión Nacional de Estudio de la Caña de Azúcar, 1961. Pp. 10. [MACA: TP379 B6 G8] T
- Villamontes and Entre Ríos areas in Tarija Department are not suitable for cane production. Favorable conditions exist in the Bermejo (Tarija) and Alto Beni (La Paz) areas.

490. GUZMÁN, Walter. Control de malezas de soya. Boletín Experimental No. 54. Santa Cruz: Estación Experimental de Saavedra, 1975. [CIAT] T
491. GUZMÁN HERBAS, Aníbal. Estudio sobre fertilización de la papa en el sur de Bolivia. Boletín Experimental No. 24. La Paz: MACA, December 1971. Pp. 32. [MACA: S189 Se6B 24] T
492. ----. Trigos blandos apropiados para las zonas altas de Bolivia: Resumen experimental. La Paz: MACA, 1971. Pp. 13. [MACA: SB191 W5 G8t] T
493. GUZMÁN VELASCO, W.H. "Efecto de siete herbicidas pre-emergentes en el control de malezas de la soya." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1975. Pp. 48. [UMSS-FCA] T
494. HALL, Richard. "Travel Report to Study Marketing Activities and Expectations Concerning Wheat and Flour in 1968." La Paz, 1968. Pp. 13. [MACA: HD9049 W4 H3s] M
- Transport is difficult and costly in Chuquisaca and Potosí. Little domestic wheat was reaching local markets, and varieties available were not the types desired by millers. Producers in Sucre and Potosí usually contract to sell their wheat before harvesting, receiving half the sales price in February or March and half after the harvest. In the Cochabamba Valley, most producers do not sell before harvesting.
495. HALPIN, John M. "El futuro de la industria ganadera en el Beni." La Paz: Ministerio de Agricultura, Servicio Agrícola Interamericano, 1961. Pp. 5. [MACA: SF196 B6 H3] T
- Producers should devote more attention to disease control, management, improved stock, and better animal nutrition.
496. HAMMOND, Steven C. "Intraregional Efficiency of Production Decisions and Interregional Efficiency of Input Use in Bolivian Agriculture." M.S. Thesis, Utah State University, Logan, 1974. T
- Develops a linear programming model, for selected crops, to generate an optimum crop combination for 1972. This is then compared with actual 1972 data. For 6 of the 7 regions (Santa Cruz being the exception) intraregional resource allocations were found to be efficient. Interregional inefficiencies, though, did exist, as the shadow prices for labor (value of the marginal product) were substantially higher in Santa Cruz than elsewhere.

497. HANSEN, E. Don. "Preliminary Soils Report on Agricultural Capacity of the Quiquibey Valley." La Paz: SAI, March 1962. 5 l. [MACA: S599 B6 H3p] T
- This valley, in the Alto Beni region, was found to have 35,000 hectares of accessible land suitable for cultivation. Transportation, though, is a problem.
498. HARGREAVES, George H. Adequacy of Rainfall for Producing Wheat Following Cotton Near Santa Cruz, Bolivia. USU Series 14/71. La Paz, 1971. Pp. 5. T
- Production of wheat following cotton would be somewhat speculative, but it seems worthwhile trying it on a small scale to determine, over a number of years, its economic feasibility. Success will depend on use of disease resistant varieties and good farm management.
499. ----. Requirements for Irrigation of Sugar Cane, Santa Cruz, Bolivia. USU Series 10/71. La Paz, February 1971. Pp. 25. T
- Soils and topography are well suited to sugar cane. "Irrigation experience to date is not available for clearly defining probable costs and possible benefits"
500. HATCH, Anthony H. An Assessment of the Temperate Fruit Research Program at the San Benito Research Center. Working Paper No. 006/76 (Final). La Paz: Consortium for International Development, August 1976. Pp. 22. [SAIG] T
- Temperate fruits, particularly those of the drupe species (peaches, etc.), have good possibilities, especially in the Upper Cochabamba Valley. The major problem now is lack of irrigation water.
501. HEATH, Dwight B. "The Aymara Indians and Bolivia's Revolutions." Inter-American Economic Affairs 19, No. 4 (Spring 1966): 31-40. M
- Aymara Indians in the province of Nor Yungas (La Paz) have gained considerable power, much of it exercised through local campesino syndicates, which in this area at any rate are not dominated by outsiders. One accomplishment was the successful establishment of standard weights for coffee: the 25-pound arroba, replacing that of 32 pounds which the intermediaries bought from campesinos (and then resold in La Paz in 29-pound units).
502. ----. "Bolivia: Peasant Syndicates among the Aymara of the Yungas: A View from the Grass Roots." In Latin American Peasant Movements, ed. Henry LANDSBERGER. Ithaca, New York: Cornell University Press, 1969. Pp. 170-209. [U.S. Dept. State: HD320.5 L3] M T Y/E
- Argues that there has been a significant redistribution of wealth since 1952. Campesinos' relationships with agricultural

middlemen are often quite similar to pre-1952 relationships with "good" patrones.

503. ----. "Camba: A Study of Land and Society in Eastern Bolivia." Ph.D. Dissertation, Yale University, 1959. M T Y/E
- " . . . Discusses the major features of the local land tenure structure and describes the effects of the 1953 agrarian reform, which includes a greater reluctance on the part of large landowners either to lease their land or to permit squatters to settle on it, a practice that could result in expropriation under the provision of the law that favors granting possession of the land to those who actually work it. However, in actual practice the effect of the land reform has been slight. Little land has been redistributed to the campesinos, landowners who support the MNR have not been dispossessed, and agricultural techniques remain primitive" [LTC, Agr.Ref.L.A.-Bibliog.].
504. ----. "Changing Land Tenure Patterns in Eastern Bolivia." Proceedings of the 36th International Congress of Americanists, Barcelona-Madrid-Sevilla, 31 August-9 September 1964. T Y/E
505. ----. "Commercial Agriculture and Land Reform in the Bolivian Oriente." Inter-American Economic Affairs 13, No. 2 (Autumn 1959): 35-45. M T Y/E
- Taken from the author's Ph.D. Dissertation. Before the agrarian reform, commercial farmers used the same techniques, including slash-and-burn farming, as subsistence farmers. After 1952, large farmers shifted to mechanized farming to obtain classification as "agricultural enterprises" and thus keep large tracts of land. This was facilitated by the availability of machinery from a U.S.-established machinery pool, whose rental charges were below operating costs. Mechanized land clearing, though, has resulted in soil depletion. Many large farmers still lack a commercial mentality. M T Y/E
506. ----. "Hacendados with Bad Table Manners: Campesino Syndicates as Surrogate Landlords in Bolivia." Inter-American Economic Affairs 24, No. 1 (Summer 1970): 3-13. Y/E
- "In many instances, campesino syndicates have come to play many of the roles that pertained previously to the landlord, especially in terms of cultural brokerage but also in many other respects" [HEATH]. The syndicates, however, have not functioned as effective cooperatives, a reflection of the disinclination (contrary to popular belief) of the indigenous population toward communal cooperation.
507. ----. "Land Reform in Bolivia." Inter-American Economic Affairs 12, No. 4 (Spring 1959): 3-27. M T Y/E
- "The author outlines the main provisions of Bolivia's agrarian reform law of 1953 and analyzes its social and economic impact.

Concludes that, 'Feudalism has been virtually abolished. In few other respects have the objectives of the agrarian reform been realized.' In the author's view, agrarian reform has not promoted development. 'Bolivia's program of economic development may succeed in spite of her thorough-going program of land reform' " [LTC, Agr.Ref.L.A.-Bibliog.].

508. ----. "Land Tenure and Social Organization: An Ethno-Historical Study from the Bolivian Oriente." Inter-American Economic Affairs 13, No. 4 (Spring 1960): 44-66. T Y/E

From the author's Ph.D. Dissertation. Stresses the importance of recognizing the importance of property rights in land as a socio-cultural institution. Land values are not determined only by the forces of supply and demand; a true land market does not exist in the Oriente.

509. ----. "New Patrons for Old: Changing Patron-Client Relationships in the Bolivian Yungas." Ethnology 12 (January 1973): 75-98. M

Despite significant formal changes, there is substantial continuity, in terms of functions, in patronage, clientage, and power structures. Many ex-hacendados are now active as middlemen in agricultural marketing. The sindicato has assumed many of the hacendado's functions. Contrary to usual assumptions, the highland Indian is not oriented toward communal cooperation. The MNR has talked about establishing cooperatives, but nothing has been done.

510. ----. "Revolution and Stability in Bolivia." Current History 49 (December 1965): 328-335, 367. Y/E

Argues that the peasants' support for the MNR can be attributed to their rising consumption levels since 1952.

511. ----; ERASMUS, Charles J.; and BUECHLER, Hans C. Land Reform and Social Revolution in Bolivia. New York: Frederick A. Praeger, Publishers, 1969. Cr M T Y/E

"A detailed examination of prereform land tenure and labor systems in Bolivia and the changes wrought by the revolution and land reform. Case studies deal with specific regions and aspects of rural life and work. Useful conclusions summarize and interpret the major findings of the three investigators. An appendix paraphrases Bolivia's 1953 agrarian reform law . . ." [LTC, Agr.Ref.L.A.-Bibliog.].

512. HENKEL, Ray. "The Chapare of Bolivia: A Study of Tropical Agriculture in Transition." Ph.D. Dissertation, University of Wisconsin--Madison, 1971. Pp. 371. [SAIG] Cr M T Y/E

"The development of accessibility to roads was found to be the primary factor contributing to the spatial and temporal varia-

tions occurring among the [subsistence, commercial, and declining-agriculture] systems. Most colonists in the Chapare have failed to achieve a viable level of commercial agriculture [because of] the high cost and limited availability of the inputs necessary for development and maintenance of such a system, the limited market for the products produced, the unsuitability of most of the techniques and processes of modern commercial agriculture for use in the humid tropics, and the preference of the colonists for a system of agriculture based on land exploitation The implications are that viable systems of commercial agriculture will not be created by the first wave of colonists to enter the humid tropics of Latin America but by others who possess the necessary capital and entrepreneurial ability to establish systems of land use that do not result in destruction of the resource base" [Diss. Abstracts, 32/08B/4663].

513. ----. "The Chapare Project: A Study of Directed Colonization in the Bolivian Tropics." A paper presented at the Rocky Mountain Association for Advancement of Science, Tucson, Arizona, May 3, 1967. Cr M T Y/E
514. ----. "The Chimoré, Alto Beni and Yapacaní Projects: A Study of Directed Colonization in the Bolivian Tropics." Mimeographed. Tempe, Arizona, 1968. [LTC Files Bo17 H2] Cr M T Y/E
515. HENNESSY, C.A.M. "Shifting Forces in the Bolivian Revolution." World Today 20 (May 1964): 197-207. M T Y/E
- Agricultural production declined immediately after the agrarian reform, and recovery did not begin until 1957. "The reform's poor showing has been due to inadequate technical assistance, poor administration, and political chicanery, but there are other deeply rooted cultural problems. Co-operatives . . . have proved disappointing because of campesino resistance [which, paradoxically, is greatest where the ayllu prevails]" [HENNESSY]. Colonization has been slow because of the lack of a frontier mentality.
516. HERBAS, R. "Status and Future Plans of Pesticide Programmes in Bolivia." In Report of the FAO/Industry Seminar on the Safe and Effective Use of Agricultural Pesticides in South America, São Paulo, Brazil, 2-15 May 1971. Document No. DDI-G/71/17. Rome: FAO, 1971. Pp. 46-50. [Accession No. 17974-71-WM] T
517. HERBAS APARICIO, Mery. "Ensayo de diez variedades de trigo (*triticum aestivum* L.) para el Departamento de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1974. Pp. 90. [UMSS-FCA] T

In the Cabeceras de Valle, application of fertilizer results in yields of up to 3,200 kg./ha., compared with 800 without fertilizer. In the Valles, the response to fertilizer is not so great. No benefit/cost or profitability data are provided.

518. HERBAS CABRERA, Carlos. Derecho de trabajar la tierra: Observaciones al proceso de la reforma agraria de Bolivia. Cochabamba: Imprenta Universitaria, 1957. Pp. 127. [LTC Files Bo 3 H2] T Y/E
- "Uncritical review of agrarian reform process, and recommendations for facilitating the reform" [LTC, Agr.Ref.L.A.-Bibliog.]
519. HERMOSA VIRREIRA, Walter. Consideraciones sobre el desarrollo agrícola boliviano y la ley de la reforma agraria. La Paz: Imprenta "Nacional," 1954. Pp. 96. [LTC Files Bo 3 H27; ERS/FDCD] M T Y/E
- Historical survey of land tenure patterns and labor use; 1950 census data; foreign trade, 1948-52; transport and marketing data; colonization and agrarian reform programs.
520. HERRERA JIMÉNEZ, Oscar, and CHUECA SOTOMAYOR, Carlos. Proyecto "Incremento de la producción lechera con cooperativas campesinas, valle de Cochabamba." La Paz: Servicio de Desarrollo de la Comunidad y Extensión Rural, April 1968. Pp. 21 + Annexes. [MACA: HD9282 H4] T
- Describes a project, financed with an IDB loan, which would provide credit to small farmers, operating cooperative dairy enterprises, for the importation of more productive dairy cattle.
521. ----, and ----. Proyecto "Incremento de la producción papera con campesinos cooperativizados de La Paz, Cochabamba, Chuquisaca, Potosí, and Tarija." La Paz: Servicio de Desarrollo de la Comunidad y Extensión Rural, July 1968. Pp. 19. [MACA: SB211 P8 H42p] T Y/E
- A 1967-68 project, in which 40 pre-cooperatives received credit from USAID for the purchase of selected seeds, fertilizers, and pesticides, was very successful. The program also provided for storage facilities, which are now being built. Argues that the project should be continued and presents a project proposal.
522. ----, and ----. Proyecto "Incremento de la producción triguera con campesinos cooperativizados" en apoyo a los proyectos verticales de producción agropecuaria. La Paz: Servicio de Extensión Agrícola y Cooperativa, 1970. Pp. 22. [MACA: HD9049 W4 H4p] Cr T
- Presents plans for using credit to increase wheat production among small farmers. Cost and profitability data are provided; but it is not clear whether costs include non-cash outlays.

523. ----; POZO, Hugo del; and CHUECA SOTOMAYOR, Carlos. Informe especial: "Programa de crédito cooperativo de la Dirección de Cooperativas Rurales"--Actividades 1969. La Paz: Servicio de Desarrollo de la Comunidad y Extensión Rural, 1969(?). Pp. 7 + Annexes. [MACA: HD1491 A5B H4i] Cr
- Discusses the use of a \$US 1 million IDB loan, used to increase production of wheat, potatoes, sheep and wool, and milk. Recommends the establishment of a Cooperative Bank.
524. HERRERA VACAFLOR, José. "Diseño de los sistemas de riego a nivel parcelario en la estación experimental 'La Tamborada.'" Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1975. Pp. 118. [UMSS-FCA]. T
525. HERRMAN, Louis F. "Review of Agricultural Policy, Prices, and Marketing Related to Proposed Sub-Tropical Land Development Project, Bolivia." La Paz: USAID/Bolivia, March 19, 1974. Pp. 33. [SAIG] Cr M T Y/E
- The small settler population in the lowlands has grown by about 10% annually in the last 20 years. Accessibility of suitable land is the principal determinant. Income of settlers, on the average, is substantially higher than farm incomes on the Altiplano. Price policy appears to restrict production. Benefit-cost analysis suggests an internal rate of return of 24%.
526. HEYDUK, Daniel. "Bolivia's Land Reform Hacendados." Inter-American Economic Affairs 27, No. 1 (Summer 1973): 87-96. M T Y/E
- The hacienda system persists in the southeastern highlands, even though former hacendados have passed from the scene. Production is still basically for subsistence.
527. ----. "The Hacienda System and Agrarian Reform in Highland Bolivia: A Re-Evaluation," Ethnology 13 (January 1974): 1-11. [FAR 22940; LTC Reprint No. 117] M T Y/E
- Survey of agrarian reform studies, by region (Altiplano, Yungas, Cochabamba, Sucre-Tarija). Notes that free communities in the Altiplano were not truly communal in an economic or social sense.
528. ----. "Huayrapampa: Bolivian Highland Peasants and the New Social Order." Cornell University Latin American Studies Program Dissertation Series, No. 27. Ithaca, 1971. Pp. 329. M T Y/E
- "The reform, although . . . aimed at destroying the essence of the hacienda system and at instituting a new social order in which the nation's peasants would have a more active role, to a great extent failed to achieve those goals. In the case of Huayrapampa and the region of highland Chuquisaca, the reform was not only ineffective in eliminating that level of the

hacienda system in which the peasants themselves were involved, but it was to a significant degree directly responsible for the continuation of many of the patterns of the hacienda complex' " [LTC, Agr.Ref.L.A.-Bibliog.].

529. HICKMAN, John M. "Colonización y movilidad social en Bolivia," América Indígena 28 (April 1968): 389-403. M T Y/E

Despite the 1952 revolution, there are still significant restrictions on social and cultural mobility. Colonization, one possible solution to this problem, has been limited by lack of access roads to areas with good agricultural potential, and by the lack of marketing infrastructure. Still, prospects for colonization are promising: colonists are generally optimistic and report improved conditions over time in the colonies.

530. HILL, Elias C. Summary Information on the Bolivian Rice Milling Industry. La Paz: Centro Boliviano de Productividad Industrial, 1967. M

531. HILL, K.W. Report on Visit of K.W. Hill to Bolivia. USU Series 16/73. La Paz, January 1973. Pp. 9. [SAIG] M T

Recommends continuation of the USU forage program. Forage seeds will still have to be imported, and suitable sites for forage seed production in Bolivia must be found. Commercial wheat production requires much higher yields. A commercial grading system for wheat should be established. Barley production could be expanded. USAID should give more support to the experiment stations.

532. HINOJOSA, José Antonio. "Economía agrícola (crédito rural)." Tesis de Grado (Economía), UMSS, Cochabamba, n.d. Pp. 83. [UMSS-IESE; missing] Cr

533. HINOJOSA TAPIA, G., and PEDRAZAS A., H. Producción de maderas en bosques naturales de Santa Cruz. Santa Cruz: MACA, 1974. Pp. 47. [MACA: HD9750 H5p] T

534. HINOJOSA T., Raúl C. Control de plagas y enfermedades del tomate. Cochabamba: MACA and MBAT, October 1971. Pp. 15. [MACA: Cochabamba] T

Tomatoes can be one of the most profitable crops per hectare if careful attention is given to insect and disease control.

535. ----. Insectos y enfermedades que dañan a los durazneros, manzanos, vides y frutillas. Boletín Técnico No. 6. Cochabamba: MACA and MBAT, December 1971. Pp. 23. [MACA: Cochabamba] T

Bulletin prepared for fruit growers. The author states that insect and disease damage is causing production to decline and quality to deteriorate.

536. ----; MONTELLANO B., Carlos; and SQUIRE, F.A. El taladro del durazno. Boletín Entomológico No. 2. Cochabamba: MBAT and MACA, July 1971. Pp. 15. [MACA: Cochabamba] T
- Until recently nothing has been done to introduce new varieties. Research is now being carried out at the San Benito Experiment Station. Production is considerable, and prices are high. But many insects affect production, especially the taladro, which does extensive and permanent damage to trees.
537. HINOJOSA TERÁN, Gilberto, and PEDRAZAS A., Hernán. Producción de maderas en bosques naturales de Santa Cruz. Santa Cruz: MACA, 1974. Pp. 47. [MACA: HD9750 H5p] T
538. HINRICHS, Carl-Theodor. Die Landwirtschaft und die Tierzucht Boliviens. Köln und Opladen, 1959. T
539. HOOPEES, Keith; PEÑA, W.; and RIERA, Simón. Performance of Altiplano Sheep in Santa Cruz. USU Series 20/72. La Paz, 1972. Pp. 9 + Tables. [SAIG] T
- An experiment to fatten Altiplano sheep in Santa Cruz was complicated by a drought in its early stages. There were some promising results, and additional experiments were recommended.
540. ----; STEVENS, James; and RIERA, Simón. Chuquiña Flusing Trials, 1971-1972. USU Series 21/74. La Paz, 1974. Pp. 2. [SAIG] T
- The trials demonstrated the importance of feeding ewes well prior to and during the breeding season. The increase in the lamb crop was spectacular.
541. HÜBSCH NEUMANN, Francisco. "Estudio del comportamiento de nuevas especies forrajeras en cultivos mixtos (gramíneas leguminosas) en el valle central de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1971. Pp. 83. [UMSS-FCA] T
- Milk production is low in the Cochabamba Valley during the winter; a 1963 study showed that 80% of the farms lacked green forage in winter, and that the number of cattle per hectare was too high. Alfalfa yields are low because of poor management and disease and pest problems. Results with various mixtures of new forage crops were not always conclusive, but show some promise.
542. HUDDLESTON, Ellis W. Pesticide Usage and Cotton Insect Control in Santa Cruz. USU Series 11/72. La Paz, November 1971. Pp. 9. [SAIG] T
- Growers are reported to average 6 pesticide applications per year. None of the pesticides used would result in a residue

problem if wheat were planted immediately after cotton. Herbicides are also widely used, but Treflan, the most important herbicide, cannot be used if double-cropping is planned. The pest management program at the university is excellent. Farmers are interested in reducing pesticide use and relying more on natural controls.

543. HUENEMANN, R.L.; BRUCH T., H.A.; and SHOLES, R.T. "A Dietary Survey in the Santa Cruz Area of Bolivia," American Journal of Tropical Medicine and Hygiene 6, No. 1 (1957): 21-31.

N

Survey of diets in 20 urban and rural households in the Montero area. Special attention is given to post-weaned children in the 1-4 age group. Diets are generally very low in calcium, riboflavin, thiamine, and vitamin A; other deficiencies were found for specific sub-groups. There was little household food production, despite considerable potential.

544. HUIZER, Gerrit, and STAVENHAGEN, Rodolfo. "Peasant Movements and Land Reform in Latin America: Mexico and Bolivia." In Rural Protests: Peasant Movements and Social Change, ed. Henry A. LANDSBERGER. London: The Macmillan Press Ltd., 1974. Pp. 378-409. [NAL: HD1521 L3]

M T Y/E

The authors argue that "extensive land redistribution has taken place in great measure as a result of peasant pressures. In Bolivia, in the course of ten years, a marked increase in welfare and decrease of rural unrest in the rural areas has occurred . . ." Land in traditionally free Indian communities, however, was untouched, and in these communities land is unevenly distributed and fragmented holdings are common. Since 1963, agrarian reform activities have slowed. No attempt was made by the government to establish communal forms of land tenure, and even cooperatives have not fared well.

545. HUNSAKER, Lloyd R. Proposals for Implementing the Bolivian National Wheat Program. USU Series 8/69. La Paz, 1969. Pp. 26.

T

Focuses on administration and management for research, extension, etc.

546. ----. Some Observations and Proposals for Further Implementing the National Wheat Program in Bolivia. USU Series 2/70. La Paz, 1970. Pp. 13.

Cr M T

Imports will have to be controlled if the wheat program is to move toward self-sufficiency. Farmers have difficulty getting loans, and the 12% interest rate seems too high. Alternative sources of financing include cooperatives and millers. Extensionists need more training.

547. HUTCHINSON, Ian D. Estudio preliminar de los bosques. Report No. AT 2323. Rome: FAO, 1967. Pp. 101. [MACA: SD437 14 H9i] T
548. "Informe de Bolivia." In Informe de la II Reunión Regional de Ganadería y Pasturas. Informe de Conferencias, Cursos y Reuniones No. 24. Maracaibo, Venezuela: IICA, October 22-26, 1973. Pp. III-A, 1-28. [NAL: S401 156] T
- Data on livestock numbers, summary of recent research, livestock credit, information, and a description of education and training of livestock specialists.
549. Ingeniería Consultora Integral--INCOTEC, S.A. Estudio de factibilidad del proyecto de riego Abapó-Florida. 3 vols. Santa Cruz: Ministerio de Finanzas and Comité de Obras Públicas de Santa Cruz, May 1973. Pp. 435. [Available in MACA/RDD] Cr M T Y/E
- Recommends development of an agricultural colony of 30,000 hectares, with cotton (summer) and wheat (winter) as the main crops. Other crops would include soybeans, peanuts, alfalfa, potatoes.
550. Instituto Boliviano de Estudio y Acción Social. El dualismo tecnológico y la economía boliviana, IV. Boletín No. 12. La Paz, 1967. 8 p. [LTC Files Bo 93.4 D82] T Y/E
551. Instituto Interamericano de Ciencias Agrícolas. Informe de la II Reunión de la Asociación Boliviana de Instituciones de Educación Agrícola Superior. Informes de Conferencias, Cursos y Reuniones No. 19. La Paz: IICA, July 25-27, 1975. [NAL: S401 156] T
- Four papers on agricultural education and summaries of roundtable discussions.
552. ----. Servicios a los países: Bolivia, Julio 1973-Junio 1974. La Paz, 1974. Pp. 23. [NAL: 281.9 IN862] T
- Describes IICA activities in Bolivia.
553. ----. Servicios a los países: Bolivia, Julio 1974-Junio 1975. La Paz, 1975. Pp. 36. [NAL: 281.9 IN862] T
- Describes IICA activities in Bolivia.
554. Instituto Interamericano del Niño. Recomendaciones de los seminarios de nutrición: La Paz (Bolivia), Santa Fe y Mendoza (Argentina), January 1962. Montevideo, 1962. Pp. 46. [NAL: TX345 1472] N
- Pp. 10-23 present a series of recommended policies and actions for improving nutrition. No data on specific nutritional deficiencies.

555. Inter-American Development Bank. Evaluation of Tropical Colonization Projects in Latin America. Papers on Agricultural Development, No. 7. Washington, D.C., 1970. Cr M T Y/E
556. ----. FAO-IDB Cooperative Program. Prioridades de inversión en el sector agropecuario de Bolivia. Documentos sobre Desarrollo Agrícola, No. 12. Washington, D.C.: IDB, August 1973. Pp. 373. [MACA: HD1866 P7pi] Cr M T Y/E
- An important survey of the agricultural sector, with frank comments about the government's administrative and technical shortcomings. Increasing employment and rural incomes has a high priority in the Mission's recommendations. The unemployment equivalent in the rural sector is estimated at 57%, but the methodology for deriving this figure is questionable. Short-term and medium-term investment priorities are identified.
557. International Labour Office (United Nations). Programa Regional del Empleo para América Latina y el Caribe. Empleo y Recursos Humanos en Bolivia. Documento de Trabajo PREALC/85, Versión Preliminar. Santiago, Chile, September 1975. [Available in MACA/RDU] M T Y/E
558. IRIARTE JIMÉNEZ, Eduardo et al. Reconocimiento detallado de suelos de las áreas tradicionales trigueras del Departamento de Cochabamba. Cochabamba: Ministerio de Agricultura, 1969. Pp. 145. [MACA: S599 B6 B64r Vol. 1] T
- Analysis of soils in various parts of Cochabamba Department. Eight maps were prepared.
559. Israel. Ministry for Foreign Affairs. Department for International Cooperation. "Report on an Agricultural Survey in Bolivia." Prepared by Itzhaz LEVY. Jerusalem, 1962. 14 l. [LTC Files Bo 4 17] Cr M T Y/E
- " . . . Recommends technical change; improved irrigation; rural instruction; regional experimental stations; veterinary service; planned agricultural credit; and organization of agricultural cooperatives. Illiteracy and peasant passivity are not seen as major stumbling blocks" [LTC, Agr.Ref.L.A.-Bibliog.].
560. Istituto Italo-Latino Americano, and Istituto di Idraulica e Costruzioni Idrauliche della Facolta di Ingegneria di Napoli. Missione in Bolivia di esperti in idrologia: Relazione conclusiva. Naples, 1973. 44 l. [NAL: GB719 B617] T
561. JACOBS, Lloyd. "Mercadeo de productos agrícolas para 21 productos." La Paz: USAID/Bolivia, May 1974. Pp. 87. [SAIG; ERS/FDCD; MACA/RDD] M
- Brief descriptions of marketing situation for 21 products, with recommendations.

562. ----, and ALLEN, Jeffrey. Traditional Wheat Area Small Farmer Survey. USU Series 19/74. La Paz, 1974. Pp. 4 + 8. Cr M T
- A survey of 100 farmers in Cochabamba, Sucre, and Tarija found that 71 marketed their wheat. Of these only 16 received the official price. Lower prices were attributable to early selling, distance from mills (and from urban centers--close to urban centers the existence of a subsidy was more widely known). Only 10 farmers received credit, and only in 2 cases did it come from an assembler (rescatador). But 45 farmers sold their wheat to assemblers. Only 19 farmers used chemical fertilizers, the remainder generally perceiving unfavorable benefit-cost ratios. Seventy-five farmers had 10 hectares or less; 87 owned all their land. Unfavorable weather was cited as the major obstacle to production by 76 farmers; 28 cited lack of credit.
563. JACOBS, Milton; ASKENASY, Alexander R.; and SCOTT, Norita P. "Resettlement in Latin America: An Analysis of 35 Cases." Photocopied. Washington, D.C.: American University, 1966. [LTC Files LA17 J11; U.S. Dept. State: HD1516 L31 J3] Cr M T Y/E
564. JAIMES S., C.A. "El ajonjolí (*sesamum indicum* L.): Posibilidades de introducción de su cultivo en Bolivia." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1961. Pp. 83. [UMSS-FCA] T
565. JIMÉNEZ PRUDENCIO, Nancy. "Breve análisis del mercado de abastecimiento de arroz en Bolivia." Tesis de Grado (Economía), UMSS, Cochabamba, n.d. Pp. 96. [UMSS-IESE; missing] M
- Wheat production can be increased through use of existing unutilized resources and taking advantage of new technology.
566. JORGENSON, Harold T. "Problems of Tropical Settlement--Experiences in Colombia and Bolivia." In The Careless Technology: Ecology and International Development, ed. M. Taghi FARVAR and John P. MILTON. Garden City, New York: The Natural History Press, 1972. Pp. 609-630. [NAL: HCG0 C65 1968] M T
- Describes spontaneous settlement in the Caranavi area, which is marginal land for extensive agricultural settlement. Soils deteriorate rapidly without crop rotation, fallowing, or fertilizer enrichment. Coffee is the main commercial crop; others are avocados, citrus fruits, rice, and corn. There are very few livestock. Slash-and-burn agriculture prevails.
567. JUDSON, J.T. Briefing Document on Bolivia. A Report by the Nutrition Program, National Center for Chronic Disease Control. Washington, D.C., 1968. N

568. KARASZ, Arthur. "Experiment in Development: Bolivia since 1952." In Freedom and Reform in Latin America, ed. Frederick B. PIKE. Notre Dame, Indiana: University of Notre Dame Press, 1959. Pp. 256-280. [GWU: JL952 P5]
- An evaluation of U.N. technical assistance to Bolivia provided by "administrative assistants" assigned to various government offices as a result of the recommendations of the Keenleyside Report. Argues that the benefits of the agrarian reform will be long-term, since new land tenure arrangements must be secured by titles and farmers must receive education to understand the benefits of new farm methods. Construction of the Santa Cruz-Cochabamba highway and of a road from La Paz to the Alto Beni has stimulated agriculture.
569. KELLER, Gordon, and AITKEN, Percy G. Economic and Social Factors in Coca Farming in the Chapare, Cochabamba, Bolivia. USU Series 8/74. La Paz, October 1974. Pp. 13.
- "Because of the high income from coca and its marketability, alternative crops have little chance of being adopted by the colonizers" [KELLER-AITKEN].
570. ----, and ----. Socio-Cultural Factors in Colonization in Bolivia: An Integrated Model for New Lands Development. USU Series 14/74. La Paz, November 1973. Pp. 51. [SAIG]
- "The core of the problem from gross perspective is to change peasant culture, its institutions, values, technology, and other customs. This can be done and is being done in the development of the eastern area, inevitably. But it is proceeding in a haphazard way with many emerging problems, technical, economic, social, and personal" [KELLER and AITKEN].
571. KEMFFP, Francisco, and ZURITA, Herbert. "Consideraciones de aspectos técnicos y económicos del cultivo 'soya'." Mimeographed. Santa Cruz, August 1975.
572. KEMPF M., Noel. "El desarrollo de la apicultura en Bolivia." El Mundo de las Abejas 20, No. 146 (October/December 1972): 27, 34. [NAL: SF521 M8]
- Bees are kept in the valleys, but the most important area is the sub-tropical plains. Of the estimated 15,000 colonies in Bolivia, 75% have been affected by the introduction of African bees from Brazil since 1967.
573. KORNFIELD, William J. "Concepto de cultura y cambio social en un pueblo bilingüe de los Andes." América Indígena 29 (October 1969): 983-1027.
- Study of Capinota, a small provincial capital 65 km. from

Cochabamba. Despite its openness and increasing social and economic contacts with Cochabamba, social change has been slow, and the daily lives of its residents have not been greatly affected. Agriculture is by far the most important activity; there is no weaving, pottery-making or other artisan or factory activity. Soils are good and the terrain is level. Farmers are assisted in planting by friends and neighbors, receiving in return food, drink, and later a share of the harvest (1 arroba). Wooden plows are used, though some farmers are now buying metal-tipped plows in the new store operated by the local extension agent. Fertilizers are used with excellent results. The major crops are grapes, carrots, beets, and to a lesser extent potatoes. Wheat and corn are less profitable and can be purchased locally. In the last five years, beef cattle and chickens have been raised. The three large chicken operations are relatively modern, and there is a good market for eggs, which are shipped by train or plane to Oruro and La Paz.

574. KUSHNER LÓPEZ, José M. Breve historia de la Estación Experimental Agrícola de los Llanos de General Saavedra, 1951-1966. Boletín de Divulgación No. 2. Saavedra, September 1965. Pp. 10. [MACA: S189 Ex72 Sa12Bd]

T

Briefly summarizes the kinds of research carried out. Research results are not reported.

575. ----. "Introducción al mejoramiento de la caña de azúcar en Santa Cruz." In Jornadas Agronómicas, Segundas, Noviembre 29-Diciembre 3, 1967. La Paz, 1967. Pp. 11. [MACA: S189 J6 15]

T

New varieties tested at the experiment station in Saavedra have not produced a cane ideal for the ecological conditions in the area. Production costs remain quite high.

576. ----. "Posibilidades de autobastecimiento nacional de azúcar." Foro Agronómico (La Paz, Ministerio de Agricultura) 1 (1963): 17-26. [MACA: S189 F6]

T

Production costs for sugar are currently high and yields are low. But self-sufficiency could be achieved in 4 years if technical assistance is made available.

577. ----. "Posibilidades de diversificación agropecuaria en Santa Cruz." In Ciclo de Conferencias sobre Desarrollo Económico. Santa Cruz: Cámara de Comercio e Industria, 1967. Pp. 83-91. [MACA: HC185 C3c]

T

Research needs to be expanded. Recommends the creation of an Instituto de Investigación Tropical. Brief summaries are provided on the outlook for various crops and livestock products.

578. ---- et al. Mejoramiento caña de azúcar: Experimento de 42 variedades de caña de azúcar, años agrícolas 1966/67-1969/70. Saavedra: Estación Experimental de Saavedra, 1970. [MACA: S189 Ex72 Sa12k] T
579. LaBARRE, Weston. The Aymara Indians of the Lake Titicaca Plateau, Bolivia. American Anthropological Association Memoir No. 28. Menasha, Wisconsin, 1948. M T Y/E
580. LAMOUR, Philippe; COCHIN, Philippe; and BOAVENTURA, Francisco. Prioridades en el campo de la agricultura. N.p.: United Nations Development Program, 1967. Pp. 65. [UN/B] T
- Recommends irrigation and technical assistance for the Altiplano, studies to eliminate salinity in irrigation water in Cochabamba, and additional studies in the Abapó-Izozog area.
581. Land Tenure Center. University of Wisconsin. The Progress of Land Reform in Bolivia. LTC Discussion Paper No. 2. Madison: Land Tenure Center, University of Wisconsin, May 1963. Pp. 23. [AID Ref. No. BL 301.35-L253; ERS/FDCD] Cr M T Y/E
- Informal remarks by Edmundo Flores, Richard W. Patch, Dwight Heath, Casto Ferragut, and Thomas Carroll, and an evaluation by Heath. In Heath's view: "Feudalism has been virtually abolished. In few other respects have the objectives of the agrarian reform been realized. As a consequence of excessive fractionation [*sic.*] of the land and lack of motivation and direction, new peasant owners produce little for market. Many even leave the land and go to cities, creating a new class of 'liberated' but impoverished Indians."
582. ----/Comité Interamericano de Desarrollo Agrícola. Final Report. N.p., n.d. [LTC Microfilm] Cr M T Y/E
583. LANDES, Hugh C. Food Product Processing and Possibilities in Bolivia. La Paz: Centro Boliviano de Productividad Industrial, November 1965. [AID Ref. No. BL641 L256] M
- Expansion of the canning industry is hindered by the black market and by the high cost and poor quality of locally hand-made cans. Importation of collapsed cans is necessary to improve product quality. High transport costs will make exporting difficult. Production of fruit nectars (not currently manufactured) should find a good local market. Recommends higher tariffs and elimination of the black market to encourage local production. However, the author reports that foreign canned goods already are about twice as expensive as local products; this indicates that the fundamental problem is not price but quality.

584. LARREA CADENA, Heriberto. Estudio de suelos: Provincia Cama-
cho, Departamento La Paz. La Paz: Consejo Nacional de Re-
forma Agraria, 1975. Pp. 92. [Available in MACA/RDD] T
- Identifies and classifies various soil types. Makes sugges-
tions for cultivating 13 major crops. Asserts (with no expla-
nation) that Altiplano farmers must organize themselves into
cooperatives to improve production and income.
585. LAU, Jurgen, with DAVIÚ GEMIO, Carlos, and VALDERRAMA, Raúl. M
Plan de industrialización de aceite y desarrollo de oleagino-
sas para Bolivia. La Paz, 1970. Pp. 63. [MACA: TP670 L3p]
- In addition to cotton and peanuts, possibilities exist for
soybeans, sesame, sunflowers, and possibly other oilcrops.
Existing plants are appropriate mainly for processing cotton-
seed. There are no modern factories for producing balanced
livestock feed; such plants could use flour from oilseeds as
a major input. The study is concerned mainly with plant con-
struction.
586. LeBARON, Allen. Altiplano Autumn. USU Series 34/74. La Paz, M T
1974. Pp. 7.
- The Altiplano is overgrazed, and there are many more animals
grazing than is commonly supposed. "The economic benefits of
regular marketing of a portion of Altiplano herds must be
made to exceed the benefit of holding individual animals in
flocks until they die. Some clear-cut permanent incentive
must be found to induce a technically better use of fallow-
lands" [LeBARON].
587. ----. Estimaciones de la producción agrícola por tamaño de
finca. Vol. IV, Resultados de la encuesta por muestreo de T
1972 de los sectores rural y urbano. La Paz, August 1976.
[MACA/RDD]
588. ----. Preliminary Estimates of Income and Household Size
Elasticities for La Paz. Working Paper E404. Logan, Utah: N Y/E
Water Management Program, Department of Agriculture and Irri-
gation Engineering, Utah State University, June 1974. [MACA/
RDD]
589. ----, assisted by AITKEN, Percy and MICHAELSEN, Leon. Working Y/E
Paper No. 2. La Paz, March 1976.
590. ----, with VASQUÉZ, Ruby J. Notes on Patterns of Rural Consump-
tion in Bolivia. Working Paper No. 1. USAID Contract AID- N Y/E
511-95t. Logan, Utah: Department of Economics, Utah State
University, March 1976.

591. ----; BROWN, Bruce; and ORTÍZ, Raúl. Estimates of the Distribution of Urban and Rural Family Income. CID Working Paper No. 09/76. La Paz, December 1976. [MACA/RDD] Y/E
592. ----; NOGALES, Héctor; and collaborators. Estimaciones del consumo rural de alimento familiar. Vol. III, Resultados de la encuesta por muestreo de 1972 de los sectores rural y urbano. La Paz, November 1975. [MACA/RDD] N Y/E
593. ----; ----; and ----. Estimaciones del consumo urbano de alimento familiar. Vol. X, Resultados de la encuesta por muestreo de 1972 de los sectores rural y urbano. La Paz, April 1976. [MACA/RDD] N
594. ----; ----; and ----. Estimaciones de la producción agropecuaria. Vol. I, Resultados de la encuesta por muestreo de 1972 de los sectores rural y urbano. La Paz, August 1975. [MACA/RDD] T
595. ----; ----; and ----. Proyecciones a largo plazo de la oferta y demanda para productos agrícolas escogidos. Vol. VI, Resultados de la encuesta por muestreo de 1972 de los sectores rural y urbano. La Paz, May 1976. [MACA/RDD] N T
596. LEIGH, Stephen. "Producción de la caña de azúcar y azúcar en los primeros dos años y los siguientes del Plan General de Desarrollo Económico y Social 1962-1971." Typewritten. La Paz: Comisión Nacional de Estudio de la Caña y del Azúcar, November 1962. 7 l. [MACA: TP379.B6 L4p] M
- Plant capacity is sufficient to process the goals for sugar production.
597. LEONARD, Olen E. Bolivia: Land, People and Institutions. Washington, D.C.: The Scarecrow Press, 1952. Pp. 297. [U.S. Dept. State: F3308 L4] Cr M II T Y/E
- Detailed socio-economic description of Bolivia on the eve of the 1952 revolution.
598. ----. El cambio económico y social en cuatro comunidades del Altiplano de Bolivia. Serie Antropología Social, No. 3. México: Instituto Indigenista Interamericano, 1966. Pp. 141. [MACA: HT421 L4c] T Y/E
- Comparative study of 2 Altiplano communities that received community development assistance after the agrarian reform, and 2 that did not. Little change in agricultural technology or crop patterns was evident in any of the communities, and the 2 assisted communities were not more advanced agriculturally than the others. In all 4 communities, there was relatively little active interest in improved technology.

599. ----. Cantón Chullpas: A Socio-Economic Study of an Area in the Cochabamba Valley of Bolivia. Foreign Agricultural Report No. 27. Washington, D.C.: U.S. Department of Agriculture, July 1948. Pp. 78. [ERS/FDCD] Cr M N T Y/E
- Birth rates are high, but so are death rates; malnutrition is a particularly important reason for high infant mortality. There is almost no migration from the area, and the population is growing slowly. Most farmers own all or part of their land, but average farm size is very small. In almost all families someone must seek non-agricultural work to provide a subsistence income. Technological change has been virtually nil since the Spanish introduced oxen. Crops are limited almost entirely to corn, potatoes, and wheat. Farmers are cheated in marketing because of the lack of standardization in weights and measures.
600. ----. "Locality Group Structure in Bolivia." In Readings in Latin American Social Organization and Institutions, ed. Olen E. LEONARD and Charles P. LOOMIS. East Lansing: Michigan State College Press, 1953. Pp. 259-265. [U.S. Dept. State/FSI: HN253 L4; GWU HN253 L45] T
- Contrasts the social organization of the finca and the communal ayllus.
601. ----. Santa Cruz: Estudio económico-social de una región. La Paz: Ministerio de Agricultura, Ganadería y Colonización, 1948. Pp. 103. [MACA: S190 Ag824; LTC: Geol HN280 S3 L4] Also published in English as Foreign Agricultural Report No. 31, U.S. Department of Agriculture, October 1948. Cr M T Y/E
- "Well-researched monograph touching on the following subjects: population and demographic movements, land use (tenure, holding size, crops, credit), social institutions and stratification, and costs and levels of living" [LTC, Agr.Ref.L.A.-Bibliog.].
602. LÉONS, Madeline B. "Changing Patterns of Social Stratification in an Emergent Bolivian Community." Ph.D. Dissertation, University of California, Los Angeles, 1966. Pp. 284. M T Y/E
- "The research focuses on the town of Arapata in the province of Nor Yungas and was carried out during the course of a fourteen-month stay in Bolivia in 1963-64 [Since the agrarian reform] the absolute economic and political position of campesinos has considerably improved More complex stratification within the campesino segment has become characteristic as Altiplano campesinos take over economic roles previously reserved to mestizos" [Diss.Abstracts, 27/10B/3377].

603. ----. "Land Reform in the Bolivian Yungas." América Indígena 27 (October-December 1967): 689-713. M T Y/E
- "Reports on a study of five ex-haciendas in the Yungas. Concludes that the small property system is now institutionalized; cooperatives are a failure; private farms should be more productive, but they are not" [LTC, Agr.Ref.L.A.-Bibliog.].
604. ----. "Stratification and Pluralism in the Bolivian Yungas." In The Social Anthropology of Latin America, ed. William GOLDSCHMIDT and Harry HOIJER. Los Angeles: Latin American Center, University of California, 1970. Pp. 256-282. [LTC Files Bo 86.7 L26] M T Y/E
- "Sociological analysis of the impact of land reform and other changes related to the 1952 revolution on the province of Nor Yungas (Department of La Paz). Describes manifestations of continuity and of change. A general pattern of social "re-classification" emerges with old castle-like boundaries blurring and local extremes in resource control converging somewhat. Changes in the social structure of haciendas receive particular attention" [LTC, Agr.Ref.L.A.-Bibliog.].
605. ----, and LÉONS, William. "Land Reform and Economic Change in the Yungas." In Beyond the Revolution, ed. James M. MALLOY and Richard S. THORN. Pittsburgh: University of Pittsburgh Press, 1971. Pp. 269-299. [U.S. Dept. State: F3326 M24] M T Y/E
- "Changes brought about by agrarian reform include the replacement of the hacienda as a social unity by peasant communities of small landowners; the replacement of the hacendado as power broker by an assortment of middlemen, town mestizos, and local politicians; stronger peasant organization through the sindicato; more direct peasant participation in marketing; increased growth of cash crops; and utilization of wage labor" [LTC, Agr.Ref.L.A.-Bibliog.]. There is considerable inequality in the distribution of land and income among the campesinos, and wealthier peasants dominate the political hierarchy of the sindicatos.
606. LEUNG, Woot-Tsuen Wu. Food Composition Table for Use in Latin America. Washington, D.C.: Interdepartmental Committee on Nutrition for National Defense and the Institute of Nutrition of Central America and Panama, June 1961. N
607. LINARES A., Adolfo. "Land Settlement in Bolivia." Development Digest 5, No. 1 (April 1967): 89-100. Cr M T Y/E
608. ----. "Problemas de colonización y su influencia en el desarrollo económico." Revista de la Facultad de Ciencias Económicas (Cochabamba) 5 (June 1964): 48-71. [MACA: HC181 C6r] T Y/E
- The author, President of the Technical Council of the Corporación Boliviana de Fomento, which was directing several coloni-

zation projects, argues that colonization can solve problems of (1) demographic pressure in the Altiplano and Valles and (2) agricultural production. A brief description is given of existing and planned colonization projects.

609. LITTLE, Arthur D., Inc., and CLAROS, Prudencio, and Associates. Prefeasibility Study: Production of Vegetable Oil and Cake in Bolivia. La Paz: Ministerio de Planificación, 1971. Pp. 220. [MACA: HD9490 A7p] M
610. LIVINGSTON, James H. "Agronomic Intensive Review." [La Paz]: February 15, 1974. Pp. 13 + Exhibits. [SAIG] T
- Report of a visit by an AID/W agronomist to help prepare an Intensive Review for a proposed loan for sub-tropical agricultural development. Discusses soil conditions and makes recommendations for major crops and livestock. Other recommendations include more road construction, self-help construction of schools and health centers, well drilling for potable water, and distribution of land parcels in sizes of approximately 50 hectares.
611. LLANO G., Enrique. Notas sobre agricultura tropical en Bolivia. 2 vols. Proyecto No. 15 del Fondo Especial de Naciones Unidas, FAO. Cochabamba: Universidad Mayor de San Simón, 1964(?). Pp. 510. [LTC Files Bo7 L5; MACA: SB111 L13a] T
- A text on tropical agriculture, with applications to Bolivia but with very little data specifically on Bolivia. Argues that Bolivia's agricultural revolution will have to be based on development of the Oriente. Very critical of land clearance by burning.
612. LOCKWOOD, Agnese N. "Indians of the Andes: Technical Assistance on the Altiplano." International Conciliation 508 (May 1956): 353-431. Cr M T Y/E
- Description of the U.N.'s Andean Indian Programme in Bolivia, Ecuador, and Peru, by the assistant editor of International Conciliation. Good critical discussion of the problems encountered at the project sites.
613. LONG, Max G. End-of-Tour Report. Administrative Report No. 002/76. La Paz: Consortium for International Development, June 1976. Pp. 12. [SAIG] T
- Summarizes on-going work in cereals research in the Santa Cruz area and makes recommendations for future research.

614. ----. Observations on Wheat Production and Milling in the Cochabamba and Tarija Departments. USU Series 7/71. La Paz, 1971. Pp. 7. M T
- Wheat production areas are generally on eroded upland soils which are sandy, rocky, and low in fertility. Small fields are not suitable for mechanization, and farm machinery was in fact generally lacking. Increases in large-scale wheat production will require mechanization of most operations. Cooperative ownership of farm machinery would be useful, as would mill-owned machinery. Wheat by-products could be used by livestock and milk producers. The extension service has no program for erosion control.
615. ----. Results of Wheat Research in the Department of Santa Cruz, 1972, 1973, 1974. USU Series 38/75. La Paz, June 1975. Pp. 30. [SAIG] T
- Yields have never consistently approached those obtained with the same varieties at the Tamborada and San Benito experiment stations in Cochabamba. Basic as well as adaptive research is needed. Wheat disease problems are a major obstacle.
616. ----. A Review of the Bolivian Wheat Program. USU Series 24/73. La Paz, June 1973. Pp. 33. [SAIG] Cr M T
- "The Vertical Wheat Program has failed to stimulate the projected increases in the production of national wheat. The wheat program has not received the necessary support from the Bolivian government and no coordinated effort has been made to develop a wheat program which can be administered by one authority" [LONG].
617. ----. A Summary of Wheat Research Conducted in the Traditional Wheat Areas. USU Series 39/75. La Paz, 1975. Pp. 18. [SAIG] T
618. ----, and BALLERSTAEDT G., Alfredo. Recommended Wheat Production Practices for the Traditional Wheat Areas. USU Series 37/75. La Paz, 1975. [SAIG] T
619. ----; GROVER, Ben; and BALLERSTAEDT G., Alfredo. Prácticas recomendadas para la producción de trigo en Santa Cruz. USU Series 21/73. La Paz, May 1973. Pp. 40. T Y/E
- Detailed recommendations; cost of production and profitability data.
620. ----; ----; WHITAKER, Morris; and FARNSWORTH, William. A Study of the Net Income Comparative Advantage of Wheat versus Corn and Potato Production in Bolivia. USU Series 24/74. La Paz, 1974. Pp. 27. [SAIG] T Y/E
- Under various price-cost situations in recent years, wheat in

the traditional areas did not have a comparative advantage over corn or potatoes. In Santa Cruz, wheat is a winter crop only and thus complementary to corn. Wheat yields there will decline without fertilizer unless production is limited to new land. Net returns per hectare in Santa Cruz are greater than for non-irrigated wheat or for summer corn.

621. LÓPEZ SORIA, J. "Características del altiplano de Bolivia y estudio crítico preliminar de ovinos criollos." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1970. Pp. 56. [UMSS-FCA] T
622. LORD, Peter P. "The Peasantry as an Emerging Political Factor in Mexico, Bolivia, and Venezuela." Land Tenure Center Paper No. 35. Madison: Land Tenure Center, University of Wisconsin, May 1965. [U.S. Dept. State: HD1531 L31 L6] T
- Peasant organizations are primitive and little progress has been made in incorporating them into the national economy and political system.
623. LOZADA FERNÁNDEZ, V. "Estudio de adaptación de doce variedades de algodón en Santa Cruz." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1964. Pp. 40. [UMSS-FCA] T
624. LUCCA, Manuel F. de. El sistema de la tenencia de la tierra en las comunidades originarias de la provincia Manco Capac, departamento de La Paz. La Paz: Servicio Nacional de Reforma Agraria, 1970. 36 p. [LTC Files Bo 58 L81] T Y/E
- "Analyzes pre- and postreform land tenure systems in indigenous communities Discusses agricultural and nonagricultural economic activity" [LTC, Agr. Ref. L.A.-Bibliog.].
625. ----, and MAMANI POCOATA, Mauricio. Área ganadera del Departamento de Santa Cruz: Estudio de caso en las Provincias de Nuflo de Chávez-Velasco, A. Sandoval-Chiquitos. La Paz: Servicio Nacional de Reforma Agraria, 1974. Pp. 141. [MACA: SF196 B6 L8a; missing] T
626. LUJAN CLAURE, Jaime, and SULETA, L. Correlación de análisis de suelos y repuesta a fertilizantes. Tarija: MACA, 1971. Pp. 8. [MACA: S599 B6 L8c] T
627. ---- et al. Capacidad agrológica de las tierras de colonización Santa Ana-Inicua. La Paz: SAI, 1964. Pp. 81. [MACA: S599 B6 B6u 10] T

Approximately 75% of this area, in the Alto Beni, is suitable for cultivation. Colonists should receive 25 has. Forest resources are scarce; indiscriminate burning should be prevented and reforestation should be undertaken.

628. LYNCH, John V., and FERREE, Paul J. The Agricultural Economy of Bolivia. Washington, D.C.: U.S. Department of Agriculture, Economic Research Service, 1961. Pp. 19. [ERS/FDCD] Cr M T Y/E
- The agricultural sector has grown slowly, mainly because mining has had a higher priority. Lack of transportation and communications has limited the growth of output in the lowlands. There is a shortage of trained technicians. The Altiplano population is reluctant to migrate.
629. McALLISTER, DeVere R. Agronomic Review of the Abapó-Izozog Irrigation Scheme. USU Series 16/66. La Paz, August 1966. Pp. 20 + map & photos. T
- The area has considerable potential for modern, commercial farming. Better transportation is necessary and proper controls for wind erosion must be established. If development is based on subsistence farming without adequate controls, the area could become a desert. Winter wheat probably will not be grown much in the area because of (1) the relatively high price of land and (2) the low bread-making quality of irrigated wheat.
630. ----, and SEJAS ALBORNOZ, Jaime. The Production of Quinoa (Chenopodium Quinoa Willd) in the Salinas de Garzi Mendoza-Llica-Quillacas Area of Bolivia. USU Series 7/67. La Paz, April 1967. Pp. 23. T
- Given terrain, climatic conditions, and the characteristics of the quinoa plant, it is unlikely that mechanization can be economical in the area. Threshing and seed cleaning, however, might be mechanized.
631. McEWEN, William J. "Teoría y metodología del proyecto RISM de Bolivia." América Indígena 27 (April 1967): 349-364. Y/E
- Describes methodology for a study of social relations in 6 small communities in different geographic areas. Includes brief descriptions of the effects of the 1952 revolution on the levels of living of lower income groups in these communities.
632. ---- et al. Changing Rural Bolivia. New York: Research Institute for the Study of Man, 1969 (also, La Paz: Peace Corps, 1969). Pp. 364. [MACA: HT421 M3ch] Published in 1975 by Oxford University Press under the title: Changing Rural Society: A Study of Communities in Bolivia. [U.S. Dept. State: HN277 M24] M T
- Social-anthropological study of 6 communities ranging from traditional to radically changing.

633. ----. "Comunidad: Análisis y acción." Estudios Andinos 3, No. 2 (1973): 109-132. M T Y/E
634. MACÍAS V., Marcial; HINOJOSA T., Gilberto; and SAÍNZ U., Antonio. Reconocimiento semi-detallado de suelos e inventario forestal: Valle de Quiquibey. La Paz: Ministerio de Agricultura, 1971. Pp. 87. [MACA: S599 B6 B6ic]
635. ----; SAÍNZ U., Antonio; and UNZUETA, O. Reconocimiento exploratorio de suelos: Zona adjacente al ferrocarril Corumbá-Santa Cruz, tramo Río Grande-Puerto Suárez. November 1970. Pp. 125. [MACA: S599 B6 B6ic 22; missing] T
636. ---- et al. Capacidad agrícola de los suelos: Triangular Bermejo. La Paz: MACA, August 1971. Pp. 45. [MACA: S599 B6 B6u 23] T
- Some 90% of the soils in the area are suitable for cultivation in this lowland area in the Department of Tarija. The land seems well-suited for irrigation, though additional studies should be undertaken.
637. McKELL, Cyrus M. Observations and Recommendations for Technical Support in Range Management in Bolivia. USU Series 12/71. La Paz, June 1971. Pp. 25. T
- "Considerable opportunities exist for improved production of high quality forage and subsequently an increase in animal products under programs of good range and pasture management" [McKELL].
638. ----. Preliminary Comments on the Rangelands of Bolivia. USU Series 3/71. La Paz, 1970. Pp. 8. [MACA: S189 U8] T
- Serious erosion problems exist. Fallow practices are inefficient.
639. MALDONADO, Abraham. Legislación social boliviana. La Paz: Imprenta Nacional, 1957. Pp. 658. T Y/E
640. MALDONADO SAN MARTÍN, Gonzalo. "Estudio de la producción y comercialización de lana de auquénidos en los Departamentos de Oruro y Potosí." La Paz: SAI, 1960. 14 l. [MACA: HD9890 M3] M T
641. MALLOY, James M. Bolivia: The Uncompleted Revolution. Pittsburgh: University of Pittsburgh Press, 1970. Pp. 396. [U.S. Dept. State: F3326 M25] T
- Argues that the MNR did not have an official position on agrarian reform (it was deeply split) until 1953; this position "is best described as one of bowing to the inevitable." It was based mainly on the ideas of Arturo Urquidi

Morales, who held "a deterministic stage concept of history, the essence of which was that socialism could not be achieved without the previous passage of a society through a well-developed capitalist stage." The strength of campesino sindicatos varied from one region to another, but on the national level the organization did not become particularly strong (because of regional and personal rivalries and the reluctance of campesinos to play an activist role once they had acquired land).

642. ----, and THORN, Richard S., eds. Beyond the Revolution: Bolivia Since 1952. Pittsburgh: University of Pittsburgh Press, 1971. Pp. 402. [U.S. Dept. State: F3326 M24] Cr M T Y/E
- Ten essays on various themes.
643. MANZANO C., Amado et al. Capacidad agrológica de las tierras de la Granja Militar de Bañado Grande. Informe GM-07. La Paz, 1964. [MACA: S599 B6 B6igm] T
- Study of soils and climate. Specific recommendations for cultivation of rice, corn, sugarcane, yucca, peanuts, and legumes.
644. ----. "Informe de Bolivia." In Informe de la Reunión Internacional sobre Sistemas de Producción para el Trópico Americano. Informes de Conferencias, Cursos y Reuniones No. 41. Lima: IICA, June 10-15, 1974. Pp. III-A, 1-72. [MACA: SB111 A2 R43; NAL: S401 156] M T
- Descriptions of climate, soils, and land use. Particular attention is devoted to forestry and livestock, with relatively little attention to crops. The information is generally of a summary nature and is available elsewhere.
645. MARTIN, Richard. "The Role of Coca in the History, Religion, and Medicine of South American Indians." Economic Botany 24 (October-December 1970): 422-438. [NAL: 450 EC7] T Y/E
- People who stop chewing coca show no withdrawal symptoms. There is no clinical disease which can be directly attributable to coca. "[C]oca is beneficial when used appropriately and is detrimental when used to excess For the Indian, coca leaves provide the same benefits that aspirin, coffee, tea, stimulants, sedatives, and numerous medicaments supply in our society To deny the use of coca to Indians is as serious a disregard for human rights as would be an attempt to outlaw beer in Germany, coffee in the near east or betel chewing in India" [MARTIN].
646. MARTÍNEZ MONTOYA, L. "Construcción de silos torre y elaboración de ensilaje." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1974. Pp. 81. [UMSS-FCA] M T

647. MAY, Jacques, and McLELLAN, Donna L. The Ecology of Malnutrition in Western South America: Colombia, Ecuador, Peru, Bolivia, and Chile. New York: Hafner Press, 1974. Pp. 221-284. [NAL: TX360 S63 M3] M N T
- General review of the agricultural sector and agricultural policies. Summary of the Montero nutrition study (1955), the nationwide ICNND study (1964), and subsequent studies conducted by the Ministry of Health. Argues that improved transportation linking the Oriente with the rest of the country will be an important factor in improving nutrition in the long run.
648. MEALLA MORENO, Ciro, and RIBEIRO M., Fernando. Evaluación del programa INC-BID, 1963/67. La Paz: INC, 1968. [INC: HD492 M4e6] Cr M T Y/E
649. MENDOZA FLORES, W. "La comercialización de la papa en el valle alto de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1969. Pp. 44. [UMSS-FCA] M T
650. MENDOZA MOLINO, Juan; MACÍAS V., Marcial; and SAÍNZ U., Antonio. Reconocimiento exploratorio de suelos: Zona Parapetí. La Paz: MACA, 1971. Pp. 67. [MACA: S599 B6 M4T] T
- Description of soil conditions in various areas.
651. MENDOZA MORATÓ, Luís Antonio. "Farm Practice Adoption among Campesinos in Tomino Province, Bolivia." M.S. Thesis, Cornell University, Ithaca, 1970. Published by Instituto Interamericano de Ciencias Agrícolas, Turrialba, Costa Rica. Pp. 155. [MACA: HT421 M41f] T
- There was a high degree of interaction between farmers and the extension agent in this province in Chuquisaca. At various times, both parties took the initiative in contacting the other. Effective teaching methods and repeated exposure of an idea to the campesinos, over time, was positively related to the adoption of new farm practices. "The five practices having the highest adoption rates were: (1) control of house insects, (2) livestock castration, (3) control of external parasites in sheep, (4) control of internal parasites in sheep, and (5) use of chemical fertilizer" [MENDOZA M.].
652. MENJIVAR, Rafael. Reforma agraria: Guatemala, Bolivia, Cuba. San Salvador, El Salvador: Editorial Universitaria de El Salvador, 1969. Pp. 475. [NAL: HD356 M4; LTC] T Y/E
- Argues that the agrarian reform was carried out without any clear idea how production should be organized. This

led to the creation of minifundia, making difficult the adoption of modern methods of production. Development policy has been too oriented toward mining, to the neglect of both agriculture and industry. Criticizes the Servicio Agrícola Interamericano for favoring capital-intensive methods of production and for channeling credit only to medium- and large-scale farmers.

653. MERCADO, N.K. "The Honey Plant Potential of the Amazon Region in Bolivia (*Apis Mellifera*)."
Apiacta 7, No. 3 (1972): 105-106. [NAL: SF521 A62] T
654. Methodist Church in Bolivia. Rural Work Committee, Eastern District. Agricultural Life in the Colonies: An Economic Study of Ten Colonies North of Santa Cruz, Bolivia. [Santa Cruz(?), 1972(?)]. Pp. 87 + Annex. [SAIG; MACA/RDD] Cr M N T Y/E
- Contains detailed demographic data, statistics on income and income distribution, employment, production, and marketing. Yields are low and farmers usually depend on one crop for their income. The 2 colonies with the highest net income produced sugarcane. In the long run, it is argued, meat production (beef and pork) offers the most secure market; soybeans are also promising. Demand for the colonists' products is limited by processing capacity, and colonists are at a disadvantage in competing with large producers. Production diversification is recommended.
655. MÉTRAUX, Alfred. "The Social and Economic Structure of the Indian Communities of the Andean Region." International Labour Review 79 (March 1959): 225-243. T
- Average landholdings around Lake Titicaca were found to be only 1/2 hectare; in the Cuzco Valley, 1 hectare. Moreover, landholdings are fragmented because of population pressure and inheritance laws.
656. MICHAELSEN, Leon C. Bolivian Extension: Its Work, Its Future--An Institution Building Monograph. USU Series 32/75. La Paz, 1975. Pp. 35. [SAIG] T
- Argues that "dramatic development opportunities exist" for improving agricultural practices among campesinos.
657. ----. Bolivia's Agricultural Extension: Amplifying Its Role in Development. USU Series 24/75. La Paz, 1975. T
658. ----. Impressions of Program Opportunities in Coop Marketing. USU Series 8/71. La Paz, March 1971. Pp. 9. M
- The author argues that only by organizing into cooperatives can most campesinos significantly increase their well-being.

.Previous coop failures have probably been caused by insufficient technical assistance and financial resources. Suggests that wheat millers be given credit to operate a contract system with campesinos farming as groups.

659. ----. Preparing Coops to Fill a More Vital Development Function. USU Series 12/75. La Paz, October 1974. Pp. 40. Cr M T Y/E

Argues that cooperative organization is necessary if campesinos are to move beyond subsistence production in the Altiplano and Valleys. Specific recommendations are made for strengthening cooperatives. In the author's view, "cooperation appears to be deeply imbedded in the Bolivian campesino culture."

660. ----. Resultados potenciales para el desarrollo del altiplano. USU Series 28/75. La Paz, 1975. Pp. 9 + 3 Tables. T Y/E

Better sheep management can result in an increment in average family income from \$b. 360 to more than \$b. 10,000 in 10 years.

661. ----. Some Fears and Aspirations of Campesinos. USU Series 30/75. La Paz, 1975. Pp. 9. [SAIG] T

Sheep have a high security value for Altiplano campesinos. Attitudes toward cooperative sheep raising and management were generally negative. There was a strong desire, though, for technical assistance and education.

662. ----. Toward an Area Development Model. USU Series 26/75. La Paz, 1975. Pp. 2. T

"There is compelling evidence that dramatic development opportunities are realisable from a concentrated extension-type effort in the Altiplano and valley areas of Bolivia" [MICHAELSEN]. Recommends that the government develop a few "pilot cooperative or community enterprises" which illustrate optimum agriculture systems for each area.

663. ----, and PEREIRA, Francisco. Pautas para preparar plan de de trabajo en extensión agrícola para el desarrollo agrícola. USU Series 32A/74. La Paz, 1974. Pp. 13. [MACA: S189 U8] T

Presents a model designed to improve the impact of extension services.

664. ---- et al. A Proposed Development Program for the Bolivian Altiplano. USU Series 38/74. La Paz, 1974. Pp. 1-12 (pp. 13-21 later issued as USU Series 28/75). M T

Recommends adoption of a pilot program for the socio-economic transformation of a selected Altiplano community.

665. MICHEL, F. Bolivia: Los años de cooperación técnica suiza en Belén. Project No. AGA-UNDP/SF BOL 21. Rome: FAO, 1971. Pp. 20. [Accession No. 20552-71-WS] T
666. MOLLER P., Edwin A. El cooperativismo y el desarrollo de la comunidad. Folleto No. 9. La Paz: Dirección Nacional de Cooperativas, 1962. Pp. 37. [LTC Files Bo 20 M6e; MACA: HD3471 M6c] Cr T
- "Advocates the formation of rural production cooperatives, as a step toward socialization. The pamphlet is intended for training Bolivian specialists in the cooperation movement" [LTC, Agr.Ref.L.A.-Bibliog.]. The author argues that cooperative use of the land will facilitate the introduction of modern techniques and soil conservation practices. Also, credit would be easier to obtain.
667. MONASTERIOS de la TORRE, Teddy. "Factores que afectan a la producción de la papa en Bolivia." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1958. Pp. 39. [UMSS-FCA] T
668. ----. "Influencia de los elementos mayores en el rendimiento de la papa en la zona de Toralapa." In Proceedings of the VI Reunión Latinoamericana de Investigadores en Papa. La Paz, March 27, 1970. Pp. 122-123. [MACA: SB211 P8 S6m 1970] T
669. ----. "Presence of Viruses in Bolivian Potatoes." Turrialba 16 (July-September 1966): 257-260. T
670. ----. "Producción de sorgo forrajero para ensilaje." In Proceedings of the IV Reunión Nacional de Pastos y Forrajes. La Paz: IICA, 1974. Pp. 116-118. [MACA: SB193 R4] T
- Sorghum is said to be a good crop for the Abapó-Izozog area. Cost-of-production data and yield estimates are provided for irrigated mechanized farming; but value of output and hence profitability data are not provided.
671. ----, and BLANC, Daniel. "Resumen de las investigaciones de plantas forrajeras en el valle de Cochabamba y su estado actual." In Proceedings of the I Reunión Nacional de Pastos y Forrajes. La Paz: IICA, 1970. Pp. 13-16. [MACA: SB193 R4] T

672. MONHEIM, Felix. "Agrarreform und Kolonisation in Peru und Bolivien: Ergebnisse einer Reise 1966." In Beitrage zur Landskunde von Peru und Bolivien, by the author. Wiesbaden: F. Steiner, 1968. Pp. 1-53. [LTC: Geol MCG28 Z3/Supp./20] T Y/E
- " . . . Bolivia's reforms and settlement program in newly opened areas are discussed with regard to settler selection, cooperatives, and migration from the settled areas" [LTC, Agr.Ref.L.A.-Bibliog.].
673. ----. Contribución a la climatología e hidrología de la cuenca del Titicaca. Puno: Universidad Técnica del Altiplano, 1956. Pp. 232. [MACA: GB156 M6c] T
674. ----. Junge Indianerkolonisation in den Tiefländern Ostboliviens. Braunschweig, 1965. [LTC: F3320.1 C6 M6] T
675. MONJE RADA, José. Estudio de costos de colonización. Comparación entre la colonización del Departamento de Santa Cruz y el Alto Beni en el Departamento de La Paz. La Paz: USAID, 1963. Pp. 119. [ERS/FDCD] Cr M T Y/E
- Examines 7 colonies in the Santa Cruz area and directed colonization in the Alto Beni. Concludes that the government should support semi-directed colonization.
676. MOREIRA RÍOS, A. "Introducción y rendimiento de 21 variedades de plátanos en el Chapare." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1975. Pp. 76. [UMSS-FCA] T
677. MUÑOZ, Miguel Angel. Informe sobre la estadística agrícola en Bolivia. FAO Report No. 2035. Rome: FAO, 1965. Pp. 42. [MACA: HD1866 M8i] T Y/E
- Describes difficulties (lack of appropriate data) in setting up a sample frame for an agricultural survey. Field work was begun in October 1963 and concluded in January 1964. Despite problems in the survey itself, the data are regarded as more reliable than previously used data. Four statistical tables from the survey are included.
678. MUÑOZ REYES, Jorge. Geografía de Bolivia. La Paz: Academia Nacional de Ciencias, in print. M T
679. MUÑOZ RIVADENEIRA, R.A. "Ensayo cuantitativo de forrajes en cultivos puros y asociados." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1974. Pp. 96. [UMSS-FCA] T
680. MURILLO, H., and JAUREGUI, E. Socio-Economic Study of the Rural Area of the Province of Arani. Cochabamba: SAI, 1963. M T Y/E

681. MURILLO CHRISTIE, Antonio. "Colonización de la Zona Caranavi-Santa Ana de Huachi: Estudio técnico socioeconómico." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1964. [UMSS-FCA; missing] T Y/E
682. MURRAY, D.B. "Informe de una visita a Bolivia con referencia al cultivo del cacao, Junio 1971." [Santa Cruz]: MBAT, 1971. Pp. 9. [CIAT: MBAT File No. 9] T
- Sustains author's 1968 conclusion that Bolivia can export cacao.
683. ----. "Informe sobre una visita a Bolivia en abril-mayo 1968." [Santa Cruz]: MBAT, 1968. Pp. 19. [CIAT: MBAT File No. 9] T
- Concludes that Bolivia has the potential to export cacao.
684. MUSTO, Stefan A. "Outline of a Reform of the Rural Educational System in Selected Regions of Bolivia." In Planning Regional Development Programs: Five Case Studies from Ethiopia, Bolivia, Nepal, Peru, Zambia, by Christian HEIMPEL et al. Berlin: German Development Institute, 1973. Pp. 151-203. [NAL: HD82 P53] T
- Describes a program to reform rural primary education so that, among other things, agricultural labor would become more productive. Existing rural education, it is said, is "absolutely irrelevant for the daily life of the rural population." The new program focuses on the Departments of La Paz, Cochabamba, and Santa Cruz.
685. NAVA MORALES, Eduardo. "A Short History of an Agrarian Reform in Latin America." In Agriculture, Land Reform, and Economic Development, comp. Ignacy SACHS. Foreword by Oscar LANGE. Studies on Developing Countries, No. 2. Warsaw: Polish Scientific Publishers, 1964. Pp. 49-72. [LTC Mem HD1415 S2] T Y/E
- "Outlines the essential provisions of the 1953 agrarian reform law, the main purpose of which was, according to the author, to clear the way for capitalist development in the country. Also briefly describes the failure of the reform" [LTC, Agr.Ref.L.A.-Bibliog.].
686. NELSON, Michael. The Development of Tropical Lands. Baltimore: The Johns Hopkins University Press, 1973. Pp. 306. [U.S. Dept. State: HD320.5 Z63 N47] Cr M T Y/E
- Includes an analysis of 24 colonization projects, 8 of which are in Bolivia (Alto Beni I, Alto Beni II, Chapare,

Chimoré, Yapacaní, San Juan, Okinawa, Guabirá). Argues that "practically all recorded colonization failures have been state-directed projects."

687. NEWMAN, Roger C. "Land Reform in Bolivia's Yungas." M.A. Thesis, Columbia University, New York, 1966. [LTC Files Bo 3 N29] T Y/E
- "A report based on field research in Bolivia. The first half deals with prereform labor and land tenure systems. Land reform in Mururata is analyzed in the second half. The principal thesis is that the revolution has promoted social mobility and the breakdown of the traditional 'two caste system.' Data from the two areas support this in general terms, but the author warns against broad generalizations" [LTC, Agr.Ref.L.A.-Bibliog.].
688. NIERNBERGER, Floyd F., and PFOST, Harry S. Observations and Recommendations for Improving Grain Storage and Marketing in Bolivia. Report No. 22. Manhattan, Kansas: Food and Feed Grain Institute, Kansas State University, 1971. [MACA/RDD; SAIG; NAL: HF5487 F6] M
- Summarizes existing marketing facilities for wheat, rice, corn, and soybeans, and makes recommendations for the types of storage facilities needed. Suggestions are also made for price and credit policies.
689. OCHOA MALDONADO, F. Algodón: Información agro-económico del cultivo en Bolivia. La Paz: Banco Agrícola de Bolivia, 1973. Pp. 24. [MACA: SB251 B6 02a] T
690. OMRAN, Abdel R.; McEWEN, William J.; and ZAKI, M.H. Epidemiological Studies in Bolivia. New York: Research Institute for the Study of Man, 1967. N
691. Organization of American States. Análisis del mercado de fertilizantes de Argentina, Bolivia, Chile, Paraguay, Uruguay y estudio sobre la posibilidad de establecer una industria. Washington, D.C., 1961. Pp. 201. [MACA: TP963 13] T
692. OROS VILLEGAS, R. "Relación entre la fertilización y el contenido de proteínas en quinua." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1971. Pp. 54. [UMSS-FCA] T
693. ORTÍZ SUÁREZ, Manuel. "El cultivo del arroz en la provincia de Sara." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1962. Pp. 138. [UMSS-FCA] T
694. ----. "El cultivo de la soya en el Departamento de Santa Cruz." Circular de Extensión No. 86. Mimeographed. Santa Cruz: MACA, December 1973. Pp. 5. T

695. ORTUÑO, René. Bolivia y la integración económica de América Latina. Buenos Aires: Instituto para la Integración de América Latina, Banco Interamericano de Desarrollo, 1969. [NAL: HC182 074] M T Y/E
- Description of the various sectors of the economy, including agriculture, and future prospects under economic integration with other Latin American countries. Argues that the attempt to implement a nationwide agrarian reform without proper administrative mechanisms created a climate of insecurity which temporarily caused agricultural production to decline. Describes efforts to increase agricultural production in the Oriente, regarded as the most promising agricultural area. Export possibilities to other LAFTA countries include beef, timber and other forest products, and tropical fruits.
696. OSBORN, Howard A. "Rice Production in Santa Cruz--A Preliminary Report of Findings of the National Rice Commission Survey of Producers in Provinces of Sara, Santiesteban and Ichilo." Dittoed. La Paz, July 1967. Pp. 24 + 7 Tables. [MACA: HD9066 08r] Cr M T
- Main problems were found to be (1) lack of production credit; (2) forward sales of rice by 59% of producers at a price 72% of the average up to July 15 and 64% of the price for sales made after the harvest; (3) depressed prices at harvest; and (4) lack of adequate storage facilities. Rice production has come to be dominated by small producers. Exporting is now possible if quality can be improved and financing provided.
697. OSBORNE, Harold. Bolivia: A Land Divided. 3rd ed. London: Oxford University Press for the Royal Institute of International Affairs, 1964. Pp. 181. M N T Y/E
- A useful historical summary. Argues, like LEONARD (1952), that the Indians of the Altiplano have little desire to change their way of life, since acculturation in the past had always been associated with exploitation. Discusses agricultural prospects for various geographic regions.
698. OSSIO S., Hugo. Problemas y perspectivas generales del cultivo de la papa en el período 1968-74. Documento de Trabajo No. 02/75. La Paz: Instituto de Investigaciones Socioeconómicas, Universidad Católica Boliviana, 1975. Pp. 36 + Annexes. [MACA: HD9235 P8 08p] Cr M T
- Average size of landholdings in potato areas has declined from 7.5 hectares in 1953 to 2.9 hectares in 1973. Such small plots of land are not especially suitable for potato production, and the problem is aggravated by relatively

poor ecological conditions for growing potatoes. Almost 70% of producers still plant traditional varieties. Marketing is still primitive, and small producers are exploited by middlemen. Bank credit is limited, and intermediaries are more important as suppliers of credit.

699. OSTRÍA GUTIÉRREZ, Alberto. The Tragedy of Bolivia: A People Crucified. New York: Devon-Adair, 1958. Pp. 158. [U.S. Dept. State: F3325 084]

M T

A polemical book by a former Bolivian diplomat and Foreign Minister. Argues that the agrarian reform had an exclusively political objective: to secure peasant support for the government. Maintains that the committee drafting the agrarian reform law was composed largely of "Communist Party members and their sympathizers." Implementation of the law favored Paz's friends and punished his enemies, regardless of economic considerations. According to the author, the real solution to the agrarian problem lies in road construction, colonization, immigration, irrigation, and credit and training for the campesinos. Given the large supply of unused land, redistribution of land was unnecessary.

700. OVANDO CANDIA, Luís. "Posibilidades de lograr el autobastecimiento nacional en fibras vegetales." Foro Agronómico (La Paz, Ministerio de Agricultura) 1 (1963): 35-47. [MACA: S189 F6]

M T

Self-sufficiency can be achieved in 4 years by bringing into production an additional 6000 hectares of cotton north of Santa Cruz. Farm units must be fairly large to be competitive. Kenaf can also be grown, under a variety of soil and climatic conditions, and could be one of the most profitable crops per hectare.

701. ----. "Posibilidades de producción de fibras textiles en el Departamento de Santa Cruz." In Ciclo de Conferencias sobre Desarrollo Económico. Santa Cruz: Cámara de Comercio e Industrias, 1967. Pp. 43-48. [MACA: HC185 C3c]

T

For cotton ecological conditions are good, yields are high, and quality is good. Repeated cultivation on the same land, though, leads to soil depletion. Export prospects are good. Possibilities exist, too, for kenaf and jute.

702. OXFAM. Report on Project for the Improvement of Indigenous Food Crops in Bolivia. Unpublished. 1966.

N

703. PADGETT, Charles. "A Study of the Poultry Industry in Bolivia." Typewritten. La Paz: USAID/Bolivia, May 14, 1963. 13 l. [MACA: SF488 B6 P3s]

T

A poultry program has been initiated, with little technical direction, but still shows promise. Limiting factors include the need for commercial operators to import 80% of chicks as well as feed concentrates; this requires credit or savings. Management techniques are poor, and many producers may not survive without assistance.

704. PADILLA A'NEIVA, Mario. Oráculo marxista en los andes. Bogotá: Impreso en Editorial Retina, 1964. Pp. 222.

T Y/E

"Anti-communist critique of the Bolivian revolution and agrarian reform" [LTC, Agr.Ref.L.A.-Bibliog.].

705. PALMER, Loren L. A Study of Bolivian Agricultural Machinery and Equipment Needs for the Wheat Program. USU Series 1/71. La Paz, 1970. Pp. 14.

M T

Soil erosion is a serious problem on many non-irrigated wheat lands. Grain storage facilities are lacking. Transportation costs in some areas may make wheat farming unprofitable. The Central Bank acquired a \$US 2 million machinery pool 15-20 years ago that has never been used. Many threshing machines used by farmers were abandoned, and only minor repairs are needed to bring them back into service; with proper maintenance they should last 30-40 years. Custom threshing is a possibility. Cooperatives might be organized to buy storage bins.

706. PAREDES ARCE, Leonardo E.; and KLOHN, Wulf. "Improvement in Hydrological Services in Bolivia." In Decisions with Inadequate Hydrologic Data. Proceedings of the Second International Symposium on Hydrology, 1972. Fort Collins, Colorado: Water Resources Publications, 1973. Pp. 40-47. [NAL: GB665 156 1972]

T

" . . . the development of many specific projects has been hampered by scarcity of hydrologic data. A [WMO-assisted] project was initiated in 1970 [but] available national and international resources are not sufficient for implementation and operation of a minimum national hydrologic network according to the WMO network density criteria. Therefore, a pragmatic approach is required, following different policies in agreement with regional geographic reality" [Authors' abstract].

707. PARKER, Karl G. A Cursory Appraisal of Plant Resources of Bolivia. USU Series 11/74. La Paz, 1973. Pp. 7. T
- Bolivia is well endowed with native plant resources. There is good reason to believe that the Altiplano has good potential for development.
708. ----. A Position Statement on Watershed Management. USU Series 31/75. La Paz, 1975. Pp. 5. T
- Overgrazing on Altiplano lands has led to erosion and flooding. This has adversely affected production of meat, fibers, and irrigated crops.
709. ----. Seeding and Management of Permanent Pastures and Rangelands on the Altiplano. USU Series 16/75. La Paz, 1975. T
710. PARRA LIJERÓN, A. "Informe preliminar del comportamiento del ganado Santa Gertrudis en Todos Santos." In Proceedings of the Reunión Nacional de Investigadores en Ganadería. La Paz, 1972. Pp. 33-48. [MACA: SF5 R4m] T
711. PARRISH, Charles James. "The Politics of Economic Development: Bolivia and Chile." Ph.D. Dissertation, University of North Carolina, Chapel Hill, 1965. T Y/E
- "The general focus is upon the manner in which each of these political systems has met the problems of economic development. The conclusion is that, given vastly different economic levels, that [sic] Bolivia has probably made greater relative strides toward the development of her social and economic resources than has Chile" [Diss. Abstracts, 26/07/4052].
712. PASTOR, Cándido. "Informe de Bolivia." In Informe de la II Reunión del Grupo de Trabajo sobre Ensayos de Especies Forestales. Informes de Conferencias, Cursos y Reuniones No. 74. Mérida, Venezuela: IICA, April 21-26, 1975. Pp. C-1-1, 1-4. [NAL: S401 156] T
- Brief description of forestry legislation and of the planting programs in eucalyptus and pine begun in 1968.
713. PATCH, Richard W. "Agriculture and the Supernatural--A Case: The Altiplano." AUFS Fieldstaff Reports, West Coast South America Series, 18, No. 4 (June 1971). Pp. 17. T
- Many Aymara speakers in the Tiquina area of Lake Titicaca have no oxen and continue to use a crude foot plow (taella). Agricultural performance is linked to the supernatural in a variety of ways. New techniques are viewed with deep distrust.

714. ----. "Bolivia: The Restrained Revolution." Annals of the American Academy of Political and Social Science 334 (March 1961): 123-132. Y/E
- "The author implies that Bolivia's peasantry forced revolution on the moderate MNR. The economic consequences have been disastrous; integration of the campesino is the principal accomplishment. Aid is necessary to maintain democracy" [LTC, Agr.Ref.L.A.-Bibliog.].
715. ----. "Bolivia Today: An Assessment Nine Years After the Revolution." AUFS Fieldstaff Reports, 8, No. 4 (1961). Pp. 19. M T
- Land titling is proceeding slowly, and small farmers have received almost no technical assistance. "Production has not increased in the areas of redistribution, the campesinos are consuming more of their own products, there is a smaller surplus for the cities" [PATCH].
716. ----. "Bolivia: U.S. Assistance in a Revolutionary Setting." In Social Change in Latin America Today, ed. Richard N. ADAMS. New York: Vintage Books, 1961. Pp. 108-176. [U.S. Dept. State: HN253 C6] T
- The U.S. aid program in Bolivia has been poorly administered, inadequately supervised, and based too much on U.S. models. Campesinos have been affected very little by it. The program needs to be oriented more toward specific communities, whose residents should actively participate in planning and implementation.
717. ----. "Bolivia's Developing Interior: A Tour of Planned and Spontaneous Colonization Efforts." AUFS Fieldstaff Reports, West Coast South America Series, 9, No. 3 (1962). Pp. 13. M T Y/E
- Optimistic view of the present and future of colonization.
718. ----. "Bolivia's Experiments in Development without Aid: A Case Study of One Man's Attack on Production, Processing Problems, and Marketing." AUFS Fieldstaff Reports, West Coast South America Series, 11, No. 4 (June 1964). Pp. 21. M T Y/E
- Discusses the leadership of Alfonso Gumicio Reyes, former Minister of Economy, to whom the author attributes much of the success of development efforts in the Santa Cruz area.
719. ----. "Change on the Altiplano: A Success Story of Land Reform and Technological Innovation in a Bolivian Village." AUFS Fieldstaff Reports, West Coast South America Series, 13, No. 1 (1966). Pp. 13. T Y/E
- "The author's analysis indicates that land redistribution

has caused a profound change in the outlook of Bolivian peasants. To date, no dramatic economic change has occurred, 'but the reform has opened the way' " [LTC, Agr.Ref.L.A.-Bibliog.].

720. ----. Freedom and Development: Rural Decision-Making and Agricultural Development. LTC Paper No. 2. Madison: Land Tenure Center, University of Wisconsin, 1966. Pp. 35. T Y/E
- "The author's thesis is that freedom in decision-making is necessary for self-sustaining economic development in agriculture" [LTC, Agr.Ref.L.A.-Bibliog.]. In Bolivia development is now possible; in Peru it is not.
721. ----. "Peasantry and National Revolution: Bolivia." In Expectant Peoples--Nationalism and Development, Kalman H. SILVERT, ed. New York: Vintage Books, 1967. Pp. 95-126. T
[U.S. Dept. State: D842 A5]
- The impetus for the agrarian reform came from the campesinos, not the government, which essentially simply provided the machinery for resolving disputes and formalized land redistributions.
722. ----. "Population Review 1970: Bolivia." AUFS Fieldstaff Reports, West Coast South America Series, 18, No. 1 (1971). Y/E
Pp. 8.
- The infant mortality rate is high but has been decreasing. As the death rate declines further (it was estimated at 19 per 1000 in 1970), the population growth rate will increase unless family planning programs can overcome illiteracy, ignorance, and conservatism. The colonization program is the most successful in Latin America but still has not prevented absolute population increases in overpopulated areas. The author believes that external emigration is not very great.
723. ----. "Social Implications of the Bolivian Agrarian Reform." M T Y/E
Ph.D. Dissertation, Cornell University, Ithaca, N.Y., 1956.
- "The author relates peasant passivity, conservatism, and futility to the feudal hacienda, and argues that a major effect of land reform is to alter the social system which relegated the Indian to poverty and cultural isolation. The analysis is based on field work in the Cochabamba Valley" [LTC, Agr.Ref.L.A.-Bibliog.].
724. ----; MARUS, John S.; and MONJE RADA, José. Estudios de colonización en Bolivia. Mimeographed. 2 vols. La Paz: U.S. Agency for International Development, 1962. Pp. 144 + 346. Cr M N T Y/E
[LTC Files Bo17 P1; MACA/RDD; MACA: HD492 E7]

The authors argue that, contrary to what is commonly believed, campesinos from the Altiplano and Valles adapt themselves well to life in the lowlands. A large investment in infrastructure and supporting services is unnecessary; some of the most successful colonies have received only a minimum of assistance. Most colonists interviewed said their diet was better than in the Altiplano or Valles; a majority (especially around Santa Cruz) reported no difficulty adapting to a different type of agriculture. In Santa Cruz, 54% of the colonists had received some assistance; in Caranavi, 13%; in Chapare, 15%. Detailed data are provided for 4 directed and semi-directed colonies and for a number of spontaneous colonies.

725. PAZ, Federico L. "Estudio de factibilidad para el cultivo de soya y algodón en 'El Pailón'." Tesis de Grado (Economía), Universidad Gabriel René Moreno, Santa Cruz, 1974. T
726. PAZ MÁRQUEZ, P. "Evaluación de los requerimientos de agua para una mayor eficiencia de riego en el valle de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1964. Pp. var. [UMSS-FCA; missing] T
727. PEINADO SOTOMAYOR, Marcelo. Land Reform in Three Communities of Cochabamba, Bolivia. Research Paper No. 44. Madison, Wisconsin: Land Tenure Center, University of Wisconsin--Madison, August 1971. [FAR 15520] Cr M T Y/E
- Based on the author's doctoral dissertation. "A 25% random sample of the population was taken using interview techniques. . . . In nearly all cases landless farmers acquired land rights over the parcels they farmed before, plus additional land granted by the reform. Now nearly all of them are members of the farmers' unions. The unions have a potential for community development and social change. Crops and methods are traditional except for an increased use of chemical fertilizer. Livestock operations are only complementary to agricultural activities. Improvements in communication and transportation have changed marketing opportunities and costs, creating incentives for expanded production of potatoes" [AID Research Abstracts 1-1, October 1973].
728. ----. "Production and Marketing [of Rice] in Bolivia." In International Rice Yearbook 1957. Pp. 42 and 58. [MACA: SB191 R5 In8] M T
729. PENN, David E. Guía práctica para la producción del café en Bolivia. Boletín Técnico No. 7. La Paz: MBAT and MACA, April 1972. Pp. 37. [NAL: S15 G7] T

Detailed description of recommended practices for cultivation and drying.

730. PEREDO, Blanca R. de. "Perfiles nutricionales de las tres áreas geográficas del país y programas de nutrición aplicada." La Paz: [Ministerio de Previsión Social y Salud Pública], July 2, 1975. Pp. 5. [SAIG] N
- Brief summary of some of the results of the nutrition surveys carried out by the Ministry. Brief description of current activities.
731. PEREIRA IRAHOLA, Francisco. "Proyecto regional de extensión para cultivo de trigo." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1966. Pp. 55. [UMSS-FCA] Cr M T
- Improved technology, introduced by the extension service could increase yields in Potosí from 400 to 1000 kg. per hectare, making the area self-sufficient in wheat. Costs would be competitive with imported wheat. Assumes that credit will be forthcoming and marketing problems resolved.
732. ----. "La transferencia de tecnología en el desarrollo agrícola de Bolivia." Typewritten. La Paz: MACA, 1975. Pp. 13. [MACA: S190 R4] T
- Summarizes research and extension services available in Bolivia. Notes that research and extension are underfunded, trained personnel are in short supply, and extensionists need training in techniques of communication.
733. PÉREZ ANGULO, Alfredo V. "Posibilidades del cultivo del sorgo en la zona de Abapó-Izozog." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1972. Pp. 64. [UMSS-FCA] T
- Tests in the area showed sorghum to be much higher yielding than corn. It can be grown in areas with less than 400 mm. of precipitation and is less susceptible to pest damage than corn. The nutritional value of sorghum as animal feed is said to almost equal that of corn. The author optimistically predicts that within a decade it will rank second to wheat among Bolivian grains. No benefit/cost or profitability data are provided.
734. PÉREZ PATÓN, Roberto. "La reforma agraria en Bolivia: Sus resultados." Estudios Agrários (México) 2, No. 4 (1962): 81-130. (Also published by Editorial Fénix, La Paz, 1961.) [LTC Files Bo 3 P2] M T Y/E
735. PETRAS, James. "Bolivia between Revolutions." Monthly Review 23, No. 2 (June 1971): 11-24. T
- Argues that the agrarian reform only produced small, fragmented landholdings. No serious attempt was made to organize peasants into larger production units; little credit, technical assistance, or infrastructure was provided. Criticizes the Torres regime for its "national capitalist" ideology; the author favors a socialist system.

736. PFOST, Harry S., and NIERNBERGER, Floyd F. Study of Grain Storage and Marketing in Bolivia. Report No. 42. Manhattan, Kansas: Food and Feed Grain Institute, Kansas State University, 1973. [MACA/RDD; SAIG] M
- Lack of data on production and consumption by provinces makes it impossible to formulate an overall grain storage and marketing program. These data are needed to determine the size and location of the facilities needed. Information is also needed on credit, transport costs (especially farm-to-market), and marketing time patterns. Long-term storage of wheat in Santa Cruz would be difficult because of high humidity and insect infestation.
737. PORTANDA ALCOBA, A. "La 'raza pardo suizo' y las posibilidades de explotación bovina en el altiplano norte, Belén-La Paz." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1973. Pp. 46. [UMSS-FCA] T
738. POSNANSKY L., Manuel V. El altiplano: Un sistema ecológico mal comprendido. Boletín Técnico No. 4. La Paz: Sociedad de Ingenieros Agrónomos de Bolivia, February 1971. Pp. 10. [MACA: S15 B6 S6b] T
- Soils have been depleted because of lack of pasture rotation, overgrazing, and burning (which tends to result in the survival only of the relatively inferior grasses).
739. POU, Claudio. "Optimal Allocation of Agricultural Resources in the Development Area of Patacamaya, Bolivia: A Linear Programming Approach." Ph.D. Dissertation, Iowa State University, 1972. Pp. 475. Cr M N Y/E
- "The Area is located in the . . . Altiplano . . . half-way between . . . La Paz and Oruro . . . Specific objectives of the research are to determine optimal land/person ratios, optimal degrees of mechanization, recommended paths for mechanization, optimal farm plans, levels of resource use, and highest achievable income per capita. Finally, a comparison between these optimal conditions and the present situation is attempted" [Diss.ABSTRACTS, 33/08A/3912].
740. PRESTON, David A. "New Towns: A Major Change in the Rural Settlement Pattern of Highland Bolivia." Journal of Latin American Studies 2 (May 1970): 1-27. M Y/E
- New towns, established largely by campesinos themselves, are thinly populated during the week but on weekends serve important marketing and administrative functions. This has helped the underemployed rural population develop non-agricultural sources of income.

741. ----. "The Revolutionary Landscape of Highland Bolivia." Geographical Journal 135 (March 1969): 1-16. M T
- One result of the agrarian reform was the development of new towns which served a marketing function. Another change, particularly in the Cochabamba Valley and near La Paz, was a diversification into horticultural crops for commercial markets. Limited evidence suggests that livestock densities have increased on parts of the Altiplano, and overgrazing is a problem. The quality of livestock deteriorated after 1952. Overcropping in the Altiplano and Valles and land clearing-farming-abandoning practices in the Yungas and Oriente have led to soil erosion and leaching.
742. PUNDT, W.G. La lucha contra las enfermedades del ganado y el mejoramiento pecuario. FAO Report No. 823. Rome: FAO, 1958. Pp. 9. (Accession No. 50823-58-MR) [MACA: SF105 F6] T
- Recommendations for disease control and improved management.
743. PUFFER, Ruth R., and SERRANO, Carlos V. Características de la mortalidad en la niñez. Scientific Publication No. 262. Washington, D.C.: Pan American Health Organization, 1973. N
744. QUESADA, A. Informe al Gobierno de Bolivia sobre extensión agrícola. Proyecto de Misión Andina. FAO Report No. 1090. Rome: FAO, 1959. Pp. 18. [MACA: S608 Q8i] M T
- Report by an advisor in the early stages of the U.M.'s Misión Andina program. Among the innovations that Misión Andina was trying to introduce were planting of eucalyptus; planting of native pasture grasses; introduction of new seeds; reduction of the time land was left in fallow; and road maintenance. Follow-up studies are recommended to determine the effectiveness of these techniques. Recommends the formation of cooperatives, but in limited numbers so that technical assistance will not be spread too thinly.
745. QUINTANILLA IBÁÑEZ, Walter, and POSNANSKY, Manuel V., comps. Temas de colonización. Various reports. La Paz, 1953-1969. [MACA: HD492 Q8t] T Y/E
- Five papers written between 1953 and 1969, on various aspects of colonization.
746. QUINTERO CULBERO, Esteban E. "Perspectivas del cultivo de arroz en Bolivia." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1974. Pp. 135. [UMSS-FCA] M T Y/E
- Detailed discussion of rice production and marketing, with

an analysis of production costs. Production costs per unit are currently more than twice those in other Latin American countries. Most rice is grown by small- and medium-sized producers, whose profit margins are low. For the country to take advantage of export markets, and continue to meet domestic demand, incentives will have to be offered to farmers, since other crops are more profitable.

747. QUINTUS BOSZ, Aksel J.A. Informe al Gobierno de Bolivia sobre los problemas de la reforma agraria en Bolivia. FAO Report No. 787. Rome: FAO, 1958. Pp. 25. [MACA: HD1306 B6 F6] T Y/E
- Report by a short-term consultant recommending accelerated distribution and titling of land; encouragement of commercial agriculture; increased colonization, with credit and technical assistance; technical assistance in simple production techniques to agrarian reform beneficiaries; general education; training of cooperative leaders; and administrative reforms at the national level.
748. RAMÍREZ CANSECO, G. "El desarrollo de comunidades rurales en Bolivia." América Indígena 32 (July-September 1972): 949-964. T
- Report by the director of the Servicio Nacional de Desarrollo de la Comunidad, describing the organization's activities. These activities include cooperative promotion and construction of roads and irrigation works.
749. RAMÍREZ MAMANI, E. "Ensayo comparativo de rendimiento y adaptación de diez variedades de trébol rojo (*trifolium pratense*) en el valle de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1973. Pp. 64. [UMSS-FCA] T
750. RAMÍREZ ROJAS, E. "Determinación de la época óptima de siembra en el valle de Cochabamba, para ocho variedades de remolacha forrajera." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1972. Pp. 82. [UMSS-FCA] T
751. RASBERGER, Edmund. Comercialización de los productos agropecuarios e industriales en Bolivia: Informe al Gobierno de Bolivia. La Paz: Secretaría Nacional de Planificación y Coordinación, May 1965. Pp. 113 + Appendix. [MACA: HD9014 B6 R3c] M

Comprehensive review of marketing processes in Bolivia. It is argued that U.S. aid has discouraged domestic production of wheat and of edible oils and fats.

752. REICHARD, Eugene C.; SHOTWELL, John; and THORNBURG, David R. Cr M T
 "The Rice Program in Bolivia." La Paz: SAI, 1960. 5 l.
 [MACA: HD9066 R4]
 Rice production tripled between 1957 and 1960, in large part because of the efforts of the Servicio Agrícola Interamericano (SAI). Most production is mechanized. About 75% of growers belong to one of 3 cooperatives. Credit was made available from SAI's Supervised Credit Division.
753. RENS, Jef. "The Andean Programme." International Labour Review 34 (December 1961): 423-461. M N T Y/E
 A description, in rather glowing terms, of the ILO's Andean Program by that organization's Deputy Director General. Useful for descriptive purposes, but the analysis is hardly critical.
754. REYE, Ulrich. "Aspectos sociales de la colonización del oriente boliviano." Aportes 17 (1970): 50-79. M T Y/E
755. ----. "The Bolivian Example: Agricultural Reform and Economic Development." Intereconomics Nos. 6/7 (June/July 1967): 174-177. Y/E
 "Agricultural reform, through redistributing landed property, drastically changed the structure of the income and property pyramid, improving the standard of living of the rural population." Housing quality has improved, clothing has changed, and a "large number of bicycles, sewing machines, and radio sets . . . can already now be counted in rural Indian households" [REYE].
756. ----. Características espaciales de la economía en el Departamento de Santa Cruz. Santa Cruz: C.00.PP., 1972. Pp. 23. T Y/E
 [C.00.PP.: 06.05.064]
 Warns against excessive concentration of agricultural activity in the area immediately surrounding Santa Cruz. Among other things, this might aggravate unemployment and marginality in the city of Santa Cruz and result in stagnation of the other parts of the Department.
757. ----. Economic Development Policy in Bolivia. Göttingen: Ibero-Amerika Institut für Wirtschaftsforschung, 1966. Cr M T Y/E
758. ----. Regionale Entwicklungspolitik im Osten Bolviens. Arbeitsberichte des Ibero-Amerika Instituts für Wirtschaftsforschung an der Universität Göttingen, Heft 2. Göttingen: Verlag Otto Schwartz & Co., 1968. Cr M T Y/E

759. REYEROS, Rafael A. Historia social del indio boliviano. 2nd ed. La Paz, 1963. (Reissue; originally published before the 1952 revolution.) Y/E
760. RIBEIRO, Fernando. Informe al Gobierno de Bolivia sobre la planificación de la colonización agrícola. FAO Report No. AT2657. La Paz, 1969. Pp. 28. [UN/B] T Y/E
- Recommends greater emphasis on spontaneous colonization, with some government assistance.
761. RICE, Edward B. Extension in the Andes: An Evaluation of Official U.S. Assistance to Agricultural Extension Services in Central and South America. Cambridge, Massachusetts: The MIT Press, 1974. Pp. 552. [GWU: S544.5 L3 R52] T
- "U.S. efforts to build agricultural extension institutions . . . achieved neither the institutional security nor the production impact that were included among the original U.S. goals." The servicio organizations "were not prepared for transfer to the bureaucratic environment of the host government" [RICE]. Extension agents can be most effective as part of the field staffs of fomento institutions. The results of extension work in Bolivia were among the most disappointing of the 12 countries studied.
762. RIERA, Simón, and BARJA, Gover. "Diagnóstico de la investigación agropecuaria en Bolivia." In Proceedings of the Reunión Nacional de Trabajo sobre Aspectos Socio-Económicos de la Investigación Agrícola en Bolivia. Santa Cruz, 1974. Pp. 8-29. T
- Detailed discussion of the history, accomplishments, and problems of agricultural research. Loss of trained manpower has been a major problem.
763. ROBERTS, N. Keith. Artisan Cooperative Cost Study. USU Series 4/67. La Paz, January 1967. Pp. 50. M
- Suggests how production of sheep's wool and alpaca products could be increased, and quality control improved.
764. ----. "End of Tour Report, [September 5, 1965-September 5, 1967]." USU Series 10/67. La Paz, September 1967. Pp. 35. [AID Ref. No. BL630.984 U89] M T
- Describes activities of Utah State University in sheep and wool production, forage production, animal management, extension education, and marketing. A number of improvements in marketing were made. Increased wheat production is technically possible, but self-sufficiency could only

be achieved in the long run and even then at high costs. Costs of clearing and irrigation rule out wheat production in non-traditional areas, where other crops would be more profitable. Argues that the PL 480 program was not responsible for declining wheat production for commercial flour; agrarian reform and price policies caused a decline before the PL 480 program began.

765. ----. New Lands Development Plan. USU Series 22/74. La Paz, March 1974. Pp. 105. [SAIG] M T Y/E
- Settlement of new lands will raise small-farmer income and increase domestic food production. The Altiplano and Valles are too crowded.
766. ----. Review--Bolivian Colonization. USU Series 28/73. La Paz, May 1973. Pp. 17. [SAIG] Cr M T Y/E
- Strongly favors colonization of the Oriente. Discusses past failures and identifies criteria for success.
767. ---- et al. Bolivian Wool: A Source of National Wealth. USU Series 1/66. La Paz, 1965. Pp. 26. M T Y/F
- The authors argue that Bolivia could export at least \$12 million worth of wool if the domestic marketing system functioned properly.
768. ROCABADO R., José R. Siete años de investigación con plantas oleaginosas soya, maní y sésamo en la Estación Experimental Agrícola de Saavedra. Boletín Técnico No. 8. Riberalta, June 1971. Pp. 66. [MACA: S189 Ex72 Sa12bt 8] T
769. ROCABADO ROCABADO, E. "Posibilidades del cultivo de ajonjolí (*sesamum indicum* L.) en Santa Cruz." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1966. Pp. 74. [UMSS-FCA] T
770. ROCHA TRIVEÑO, R. "Estudio de 391 variedades de trigo en la Estación Experimental 'La Tamborada'." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1971. Pp. 114. [UMSS-FCA] T
771. RODRÍGUEZ IRIARTE, Juan C. "Consideraciones sobre el desarrollo del cultivo del durazno en el valle alto." In Proceedings of the Reunión Nacional de Trabajo Sobre Aspectos Socio-Económicos de la Investigación Agrícola en Bolivia. Santa Cruz: IICA, 1975. Pp. 85-91. [MACA: S189 Ex72 R4] Cr T
- Average landholding is only 0.9 hectares, and outside income is required to maintain a family. Land is not irrigated. Peaches are grown quite profitably on small garden

plots, despite lack of proper care of trees. Fruit research has been carried out in the valle alto, but campesinos have shown little interest. Extension services, credit, and irrigation are necessary for research results to be translated into higher farm income.

772. ----. "El cultivo del maní en los llanos de Santa Cruz." Hoja Divulgación No. 7. Riberalta: Estación Experimental Agrícola de los Trópicos, 1962. Pp. 6. [MACA: S189 Ex72 R31n] T
- Brief history of peanut cultivation in the area; list of varieties tested, with results.
773. ----. "Informe preliminar sobre investigación del algodón en los llanos de Santa Cruz." Boletín Técnico No. 3. Riberalta: Estación Experimental de los Trópicos, 1962. Pp. 32-37. [MACA: S189 Ex72 R31B6] T
- Brief history of cotton cultivation in the area; list of varieties tested, with results.
774. ----. "Informe preliminar sobre investigación del girasol en los llanos de Santa Cruz." Boletín Técnico No. 4. Riberalta: Estación Experimental Agrícola de los Trópicos, 1962. Pp. 27-31. [MACA: S189 Ex72 R31B6] T
- Brief history of sunflower cultivation in the area; list of varieties tested, with results.
775. ----. "Investigación de plantas oleaginosas e ideas para solucionar el problema del aceite en el país." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1962. Pp. 44. [UMSS-FCA] M T
776. ----. "Síntesis de los trabajos de investigaciones de la Estación Experimental de San Benito." In Memorias de la I Reunión Nacional de Investigaciones en Fruticultura, 1974. Cochabamba: IICA, 1974. Pp. 53-58. [MACA: SB354 R4m] T
- Summary of research results on fruits.
777. ----. La soya en los llanos de Santa Cruz (5 años de investigación). Boletín Técnico No. 1. Riberalta: Estación Experimental Agrícola de los Trópicos, 1962. Pp. 16. [MACA: S189 Ex72 R31B6] T
- Brief history of soybean cultivation in the area; list of varieties tested, with results.

778. RODRÍGUEZ PASTOR, Humberto. "Progresismo y cambios en Llica." M T Y/E
 In La comunidad andina, ed. José R. SABOGAL WIESSE. Ediciones Especiales No. 51. México: Instituto Indigenista Interamericano, 1969. Pp. 73-147. [MACA: E65 In5e]

Agricultural progress in Llica, Department of Potosí, has been hindered by lack of water, altitude, strong winds, and hail. Its isolated location near several saltpans adversely affects soil fertility and makes marketing difficult. Very few campesinos use fertilizer, given the relatively high risk of total crop loss. Of some 2200 campesinos, about 1600 support their families almost exclusively from agriculture; some livestock is marketed, and there is some occasional work in the mines. The remaining 500-600, who are more willing to promote social change, have some other work, though this is usually not a permanent job. Education has been the major reason for favorable attitudes toward social change. The agrarian reform had little impact in Llica because campesinos already had their own land. Despite some failures, attitudes towards cooperatives are highly favorable; improvements in both production and marketing are anticipated.

779. RODRÍGUEZ RIVADENEYRA, Jaime, and CHÁVEZ ARANDA, Francisco. M T
Evaluación de la producción de caña de azúcar, algodón y arroz en el departamento de Santa Cruz. La Paz: Dirección General de Estadística y Censos, January 1965. Pp. 22. [MACA: HD9014 B6 D5e]

Overproduction of sugar relative to milling capacity led some producers to burn a large proportion of their crop. Land suitable for cotton production is available but not being utilized. Rice production in the area is declining because of the lack of a market; small producers with inadequate transport have been especially affected.

780. ROJAS COSTAS, Hugo. "Cultivo de durazneros en Punata y posibilidades de su incremento." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1975. Pp. 55. [UMSS-FCA] T
781. ROJAS ROSALES, Remberto. "Reforma agraria en la región de Ucuireña, Provincia Jordán (Cliza), Departamento de Cochabamba." Cochabamba, 1964. 91. [LTC Files Bo 93.2 R6j] T Y/E

"Interesting and detailed account of the prereform ownership and operation of three haciendas in the region where Bolivia's agrarian reform began. Concentrates on the legal aspects of tenancy and the forms of labor employed by the hacendados" [LTC, Agr.Ref.L.A.-Bibliog.].

782. ROJAS VILLAROEL, Hernán. "El crédito agrícola en relación a las actuales condiciones de la agricultura nacional." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1972. Pp. 39. [UMSS-FCA] Cr T
- Argues that agricultural credit systems in the country should be unified and the amount of funds made available should be increased. Largely descriptive; little data or analysis.
783. ROMERO S., Jaime. Alternativa de solución para el problema del minifundio en Bolivia. Cuaderno No. 2. La Paz: Centro de Estudios de Reforma Agraria Integral, 1969. Pp. 28. [LTC Files Bo 94 R65; MACA: HD1306 B6 C42c] T
- "Discusses the problem of parcel fragmentation in Bolivia and some possible solutions. Cites concentration schemes in various European countries" [LTC, Agr.Ref.L.A.-Bibliog.]. Rather sanguine about the possibilities for providing for displaced farmers through additional expropriation of large farms, colonization, and non-agricultural employment.
784. ROSSITER, J., and DELGADILLO SAAVEDRA, Guido. "Plantas Forrajeras para el trópico boliviano." Parts 1-21. Boletín Técnico, Nos. 1-7, 9-18, 21. Santa Cruz: MACA and MBAT, Estación Experimental de Saavedra, 1970-1972. [MACA: S189 Ex72 Sa12bt; CIAT] T
785. ROYDEN, Thomas. "Observations on the Agricultural Potential of the Chapare, Alto Beni, and Apolo Areas as Compared to the Santa Cruz Area." [La Paz]: October 1972. Pp. 6. [SAIG] M T
- "If decisions have to be taken as to where to assist in production and marketing expansion, Santa Cruz, with all its advantages, is without doubt the area where the use of limited capital resources will give the greatest return" [ROYDEN].
786. ----. Preliminary Report on the Impact of Access Roads on Spontaneous Colonization. USU Series 9A/73. La Paz, October 1972. Cr M T Y/E
- Contains data on high cost of directed colonization programs. Provides socio-economic profiles of 4 colonies in the Santa Cruz area. Final report will include cost-benefit data on the impact of the construction of an all-weather road.

787. ----: A Review of Small Farmer Credit--Bolivia. USU Series 9/73. La Paz, 1972. Pp. 97 + Tables.

Cr T

Notes that the Banco Agrícola de Bolivia (BAB) is the only agricultural development bank in the hemisphere which receives no subsidy from the central government. Yet it is not entirely free to operate on a strictly commercial basis. Loans to individual campesinos declined sharply from 1965 to 1971, but loans to cooperatives increased and accounted for 31% of all BAB loans from 1964 through 1971. The risk of crop failure, plus a "very punitive attitude" on the part of the BAB, makes farmers reluctant to use modern inputs. Private bank lending in the Santa Cruz area has been increasing rapidly.

788. ----, and WENNERGREN, E. Boyd. The Impact of Access Roads on Spontaneous Colonization: Chané-Piray, Bolivia. USU Series 23/73. Logan, Utah, 1973. Pp. 89. [SAIG]

Cr M T Y/E

Government-directed colonization programs have been costly, poorly planned and coordinated, and generally not successful. Spontaneous colonization based on access roads and other limited infrastructure is less costly and economically justifiable. Net returns per hectare were found to be significantly influenced by transport costs.

789. RUFF, Samuel O. "Bolivia." In The Agricultural Situation in the Western Hemisphere: Review of 1974 and Outlook for 1975. Foreign Agriculture Economic Report No. 103. Washington, D.C.: U.S. Department of Agriculture, April 1975. Pp. 20-21. [NAL: A281.9 AG8F]

T

Discusses production and trade in major crops and livestock during 1974, a year in which production made no gains because of rains and flooding.

790. ----. "Bolivia's Farm Production and Exports Set New Records in 1973." Foreign Agriculture 12, No. 27 (July 8, 1974): 10-12.

Cr M T Y/E

Contrasts the stagnant agriculture of the Altiplano with rapidly increasing production in the Oriente. Provides data on agricultural exports and imports. Notes that efforts to increase wheat production have not been very successful.

791. RÍZ GONZÁLEZ, Raúl. Causas del atraso de Bolivia. La Paz: Renovación Ltda., 1964. Pp. 36. [LTC Files Bo 30 R8]

Y/E

"Marxist interpretation of Bolivia's poverty, centering on various issues related to imperialism and dealing with backwardness in all sectors of the economy. Touches on the issue of agrarian reform" [LTC, Agr.Ref.L.A.-Bibliog.].

792. RUSSEL, Darrell A. et al. A Fertilizer Program for Bolivia. Muscle Shoals, Alabama: Tennessee Valley Authority, June 1970. [Available in MACA/RDD] M T
- Construction of a nitrogen complex at Santa Cruz is recommended only if YPFB can obtain sufficient export contracts for ammonium nitrate so the plant can run at 2/3 of capacity or more. A superphosphate plant is not recommended. A bulk blending plant (privately operated and subject to market checks) is recommended for Santa Cruz. A promotion and education campaign should be undertaken, especially on radio.
793. SAAVEDRA GUZMÁN, E. "Ensayo de introducción y comportamiento con nuevas variedades de cebada." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1969. Pp. 84. [UMSS-FCA] T
794. SAAVEDRA LÓPEZ, J. "Costos de producción de plátano en la zona de colonización del Alto Beni y comercialización de cinco variedades en el mercado de La Paz." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1975. Pp. 55. [UMSS-FCA] M T Y/E
795. SALAMANCA BRANDENBURG, J. "Estudio comparativo de rendimiento de 140 variedades de trigo." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1969. Pp. 93. [UMSS-FCA] T
796. SALAS D., Raúl, and VISCARRA A., Mario. Producción, costos y comercialización de frutas provenientes de las Yungas de La Paz. La Paz: SAI, August 1961. Pp. 52. [ERS/FDCD] M T
- Data on yields and production and marketing costs for citrus fruits, bananas, pineapple, and avocados.
797. SALAUES E., Emilio S. "Adaptabilidad de siete variedades de arroz (*oryza sativa* L.) a las condiciones ambientales en Santa Cruz." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1975. Pp. 37. [UMSS-FCA] T
798. ----. Comportamiento de siete variedades de arroz en seis localidades de Santa Cruz. Boletín Experimental No. 52. Santa Cruz: Estación Experimental de Saavedra, 1975. T
799. SALAZAR GUZMÁN, Alfredo. "El crédito agrícola supervisado en el desarrollo agropecuario del Departamento de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1965. Pp. 46. [UMSS-FCA] Cr M T
- The Banco Agrícola de Bolivia has lacked both the quantity and quality of personnel required for proper supervision. Funds available for lending have been declining in real terms. If small farmers are to benefit more, they must be organized into cooperatives.

800. SÁNCHEZ V., Francisco, and WESSEL, Kelso L. Resumen de tres zonas de colonización y comparación de la agricultura del Oriente con el Altiplano. Report prepared under USAID Regional Contract LA 206. La Paz, July 1966. Pp. 148. [LTC Files Bo4 S1; MACA: HD492 S2] Cr M T Y/E
- Describes climate, soils, production, and marketing in 3 Altiplano communities and in the Alto Beni, Chapare, and Santa Cruz colonization areas; then compares 5 colonies in the Santa Cruz area with the 3 Altiplano communities. Recommends that colonists be given more land, credit, and, especially, technical assistance and education. Spontaneous colonization is viewed as preferable to directed colonization.
801. SÁNCHEZ VÁSQUEZ, A. Un ensayo de extensión agrícola en Bolivia: Análisis, crítica, sugerencias. Potosí: MACA, 1974. Pp. 86. [MACA: S544.5B S3u] T
802. ----. "Necesidad de mayor y mejor utilización de maquinaria agrícola." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1960. Pp. 33. [UMSS-FCA; missing] T
803. SÁNCHEZ VELÁSQUEZ, R. "Tipo de silo adecuado para la conservación de papa en el altiplano." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1965. Pp. 51. [UMSS-FCA] T
804. SANDOVAL RODRÍGUEZ, Isaac. Bolivia y América Latina: Estructuras de cambio. La Paz: Cooperativa de Artes Gráficas E. Burillo, 1969. Pp. 153. [LTC: HC182 S15] Cr M T Y/E
- "Chapters 2 and 3 examine briefly the transformation of Bolivia's land system. Development planning, credit, and the lack of technical progress are emphasized" [LTC, Agr. Ref.L.A.-Bibliog.].
805. SANGINES URIARTE, Marcelo. Educación rural y desarrollo en Bolivia. La Paz: Editorial Don Bosco, 1968. Pp. 212. [LTC: LC5148 B6 S15; MACA: LB1567 S3e; missing] T
806. ----. Estudio de la educación rural boliviana: Historia, organización, funcionamiento y recursos. Estudio de la estructura agraria en Bolivia, Subproyecto VI. La Paz: Comité Interamericano de Desarrollo Agrícola, 1967. [LTC: LC5148 B6 S157] T
- "Well-documented study describing Bolivia's rural education before and after the 1953 revolution. One of the objects of the agrarian reform was to integrate the Indian into his country's social and economic life, and better education was seen as important means to this end" [LTC, Agr. Ref.L.A.-Bibliog.].

807. SANZ GUERRERO, Andrés. "Estudio de prefactibilidad del proyecto maíz, limitado a la zona central norte." Santa Cruz: Ministerio de Agricultura, March 1968. Pp. 10. [MACA: HD9030.C7 S3e; SAIG]

M T

There is a strong market for corn in Europe, and Bolivia could export 200,000 MT annually. Present bottlenecks include high transport costs via the Paraná-Plata system, high bagging costs, and low yields. Until these bottlenecks are removed, exporting is not feasible. Corn producers presently lack storage facilities and prices received are low; marketing margins for the domestic market are high. With a guaranteed minimum price, many small producers say they would double or triple production.

808. SARIOLA, Sakari. "A Colonization Experiment in Bolivia." Rural Sociology 25 (March 1960): 76-90.

Y/E

" . . . Migration and resettlement of peasants from the Cochabamba Valley area to the Montero region in Santa Cruz were affected in various ways by the attitudes of the colonizers and by a series of social, cultural, and economic factors. The attitudes of the Cochabamba Valley peasants were found to be favorable to migration. Among the colonizing experiences which negatively affected these attitudes and contributed to instability among the settlers were fatigue caused by work in the Santa Cruz colony, the lack of farming implements, the lack of social rewards derived from community life, dangers connected with the new environment, and changes in food habits" [Author's abstract].

809. SATTORI CORTÉZ, Fernando A. "Construcción de potreros de ganado vacuno para incrementar la producción." Tesis de Grado (Economía), UMSS, Cochabamba, 1972. Pp. 65. [UMSS-IESE]

T Y/E

Cattle production in the Beni is very inefficient and productivity is actually declining. Proper pasture management can significantly reduce costs. Economies of scale were found to exist, with rates of return on investment ranging from 31.7% to 38.5%, depending on the scale of operations. Overall profitability, it is argued, would range from 59.5% to 74.8% (though the methodology used to calculate costs is not clear). Existing costs were based on a detailed survey of 30 ranches.

810. SAUMA ROMERO, G. "Introducción de variedades forrajeras en especies promisorias para el valle de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1973. Pp. 75. [UMSS-FCA]

T

811. SAZAMA, Gerald W. "Land Taxes: Prerequisites and Obstacles--Bolivia." National Tax Journal 23 (September 1970): 315-323. T
- Bolivia has been considering a land tax since 1961, but none has yet been enacted. Prerequisites for an effective tax, which can provide incentives for increased production, are (1) political acceptance, (2) a good cadastral survey ("a long way off" in Bolivia), and (3) administrative capacity.
812. SCHOOLCRAFT, Donald C. "Producción y comercialización de castaña y goma en Bolivia." Typewritten. La Paz: USAID, March 1964. Pp. 19. [MACA: HD9161 Sch31p] M T
813. SCHOOP, Wolfgang. Vergleichende Untersuchungen zur Agrarkolonisation der Hochlandindianer am Andenabfall und im Tiefland Ostboliviens. Aachener Geographische Arbeiten, Heft 4. Wiesbaden: Franz Steiner Verlag GMBH, 1970. Pp. 298. [NAL: HD1516 B6S3] Cr M T Y/E
- Based on a 15-month study of the Caranavi district (Alto Beni), part of the Santa Cruz region (Aroma and Cuatro Ojitos independent colonies), and the Chapare.
- "In all, Schoop has assembled and mapped considerable detail on local conditions. Relative costs, the degree of abandonment, land use, village morphology, transportation and market problems, and colonists' attitudes, anxieties and prospects are examined and assessed in their geographical contexts" [FIFER 1973: 395]. Migration has been ineffective in reducing population pressure on the highlands.
814. SCHULLMEYER ANAYA, H. "Análisis agroeconómico de las provincias Hernando Siles y Luís Calvo del Departamento de Chuquisaca." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1964. Pp. 55. [UMSS-FCA] T
815. SCHWENG, Lorand D. "An Indian Community Development Project in Bolivia." América Indígena 22 (1962): 155-168. Cr M T Y/E
- "Reviews an integral development project in the Lake Titicaca region (el Proyecto de Pillapi) organized by the ILO. Notes the close connection between agrarian reform and broader development programs" [LTC, Agr.Ref.L.A.-Bibliog.].
816. SCOTT, C.W. Informe al Gobierno de Bolivia sobre producción y clasificación de la caoba y otras maderas para la exportación. Report No. 1241. Rome: FAO, 1960. Pp. 37. [MACA: SD437.14 Sc6] T

817. Servicio de Cooperación Internacional del Japón en Bolivia. [Data for Colonies San Juan, Okinawa 1, Okinawa 2, and Okinawa 3.] Santa Cruz, 1976. Pp. 15, in Japanese. T Y/E
Demographic information and data on agricultural output and income.
818. Servicio de Emigración de Japón en Bolivia. Breve informe sobre la colonia japonesa. Santa Cruz, 1966. T Y/E
819. ----. Informe de labores agrícolas de la colonia japonesa San Juan correspondiente al año 1963-1964. Santa Cruz, 1966. T Y/E
820. SHEARER, Eric B. Estudio de la estructura y los sistemas de tenencia de la tierra en las áreas ganaderas del oriente boliviano. La Paz: LTC, 1970. [LTC: HD486 532] T Y/E
821. SHOTWELL, John W. "Bolivian Agricultural Wools: Their Production, Markets and Potentials, 1958." Typewritten. La Paz, 1959. Pp. 32. [MACA: HD9890 Sh6] M
Under optimistic assumptions, sheep and alpaca wool exports could amount to some \$1.2 million, with gains over local prices amounting to \$420,000. Greater export income (about \$2.8 million) could be earned if llama wool could be sold in large volume at more competitive prices.
822. SHUART, C. Edmund. "A Survey for Dairy and Beef Livestock Improvement in Three Areas of Bolivia." La Paz: SAI, March 1965. 10 l. [MACA: SF196 B6 Sh9s] T
Milk production per cow and per hectare in Cochabamba could be doubled; management is poor and credit is scarce. The Santa Cruz area, where there is little dairy production now, is very promising. It is doubtful that dairy research in the Altiplano will be successful.
823. SHUHART, D.V. "Preliminary Results with Some Fertilizers on Potatoes in the Altiplano." La Paz: SAI, 1953(?). Pp. 34. T
824. SILVA, Oscar, and PAX, Sergio A. "Situación de la reforma agraria en Bolivia." Memoria de la 1ª Reunión Internacional de Ejecutivos de la Reforma Agraria. Bogotá: IICA-CIRA, 1965. [LTC: HD320.5 R28 1965] T Y/E
"The authors' analysis indicates that land redistribution is but a partial solution to problems of rural poverty. Stresses the need for increased rationality in the land redistribution program and complementary programs in promotion and socio-economic development. Contains some statistics on the extent of land redistribution" [LTC, Agr.Ref.L.A.-Bibliog.].

825. SIMMONS, Roger A. Palca and Pucara: A Study of the Effects of Revolution on Two Bolivian Haciendas. University of California Publications in Anthropology, Vol. 9. Berkeley: University of California Press, c1974. Pp. 212. [GWU: F2230.2 K4 S56] Cr M N T Y/E
- Study of two ex-haciendas in the Cochabamba Valley. Palca is the larger, produces more cash crops, and has some wealthier peasants than Pucara. Yet, in contrast to Pucara, there has been little innovation.
826. SLATER, Charles; HENLEY, Donald; MERCADO, Alfredo et al. "Características y prácticas de mercadeo de los agricultores bolivianos." Estudios Andinos 2, No. 1 (1971): 5-35. M
- Interviews with producers and middlemen indicate that the production and marketing systems on ex-haciendas have changed significantly since 1952. Specific marketing practices are described for the Altiplano (Rio Abajo area near La Paz), Yungas, Cochabamba, and Santa Cruz.
827. ---- et al. Market Processes in La Paz. Research Report No. 3. East Lansing: Latin American Studies Center, Michigan State University, 1969. M Y/E
- Argues that marketing reforms can increase production and make income distribution more equitable. "Marketing participants are too numerous and the system too fragmented to be efficient in terms of inducing supply expansion and minimizing mark-ups from farmer to consumer" [SLATER et al.]. It is uncertain whether the present system can adequately supply an urban population growing by 6% annually. Low income urban families spend 66% of their income on food.
828. SLY, R. Scott. Preliminary Report on Sheep Marketing in Bolivia. USU Series 7/69. La Paz, June 1969. Pp. 22. M T Y/E
- Sheep marketing processes are poor because of lack of marketing information, poor producer-buyer contact, lack of commercial sheep transportation, slaughterhouses with poor facilities, and unattractive retail methods. Production methods are also poor.
829. SMITH, Stephen M. "The Potato Market of La Paz, Bolivia and the Effects of the Agrarian Reform." LTC No. 76. Madison, Wisconsin: Land Tenure Center, University of Wisconsin--Madison, April 1971. [FAR 15516] M
- "This study produces two important statistical results: (1) the income elasticity of demand for potatoes is negative; (2) the price variance of potatoes has increased since the agrarian reforms. Concludes that market systems need to be improved, and profitable alternative crops promoted" [LTC, Agr.Ref.L.A.-Bibliog.].

830. SOBREVILLA VARGAS, J.A. "Cálculo de costos de la leche en el valle central de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1967. Pp. 101. [UMSS-FCA] T
831. SOLIZ RIVERA, A.J. "Estudio para el incremento del cultivo del palto en Bolivia." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1967. Pp. 98. [UMSS-FCA] M T
832. SORIA GALVARRO, S.F. "Trabajos preliminares sobre ensilage de pastos tropicales en el área de Santa Cruz." Thesis for Degree of Ingeniero Agrónomo, 1972. Pp. 52. [UMSS-FCA] T
833. SOUTH, Robert Browning. "An Analysis of Commodity Flows and the Spatial Structure of the Bolivian Economy." Ph.D. Dissertation, University of Maryland, College Park, 1972. M
- "The transactions used in the analysis are commodity flow data from the Bolivian rail and road network The analysis of commodity flows has revealed that Bolivia's spatial structure consists of a series of functional regions confined to the southern half of the nation. In general, for both shippers and receivers a four-fold functional regionalization of the economy emerges" [Diss.Abstracts, 33/10B/4861].
834. ----. "Coca-Cocaine: A Cash Crop in Highland Bolivia." Mimeographed. N.p., n.d. [FAR 19473] [Permission required to quote] M T Y/E
835. SPIAGGI CECCARELLI, Luís. Plan decenal de certificación de semilla, 1963-1972. La Paz: SAI, 1963. Pp. 27. [MACA: SB114 A4B Sp5p] T
- Seed imports averaged US\$ 3 million during 1957-61. A seed production program can move Bolivia toward self-sufficiency and save scarce foreign exchange.
836. STEARMAN, Allyn M. "Colonization in Eastern Bolivia: Problems and Prospects." Human Organization 32 (Fall 1973): 285-293. Y/E
- "The related problems of increasing demographic pressures and scarcity of arable land in the highlands of Bolivia have led to a series of attempts to redistribute the population To the east there [is] promise of abundant agricultural opportunity to anyone willing to challenge the wilderness. This area has repeatedly been looked to for solutions to Bolivia's problems of overcrowding in the intermontane valleys and on the high plateaus. However, each organized thrust to the east in the form of a planned

settlement program has been plagued with adversities and doomed to almost certain failure. This low incidence of success may be attributed to several factors relating to initial planning, administration, and social and cultural patterns of the highland immigrants" [Author's abstract].

NOTE: Description in text is not so negative.

837. STEVENS, James. The Lahuachaca Ram Auction. USU Series 17/75. La Paz, 1975. Pp. 9. M
- There is a need for organized sheep marketing; the last ram sale was in 1963. An auction was organized in Lahuachaca, and the successful results are described.
838. ----. Necesidades nutricionales del ganado ovino. USU Series 29/74. La Paz, 1974. Pp. 79. T
839. ----. Sistema anual de manejo de ovejas. USU Series 25/75. La Paz, 1975. T
840. ----, and BORDA, Hugo. Orientaciones para la realización de remates de ovejas en Bolivia. USU Series 19/75. La Paz, 1975. Pp. 5. [MACA: S189 U8] M
- Marketing information bulletin providing tips for both buyers and sellers.
841. ----, and ----. Sheep Fattening in the North Yungas, September-December 1973. USU Series 4/75. La Paz, 1974. Pp. 7. M T Y/E
- Sheep from the overgrazed Altiplano could be transferred to the North Yungas, where available land and a meat shortage exist.
842. ----; RIERA, Simón; and BORDA, Hugo. "Experimento sobre alimentación de ovinos en Pazña y Patacamaya, Oruro, Bolivia." USU Series 14/73. La Paz, 1972. M T
- Cost analysis showed a net loss of \$b. 20 per animal. It is recommended that feed be purchased locally at harvest time, when prices are favorable; this and other practices will yield a net profit. The marketing system offers low prices to producers, thus discouraging production.
843. STOKER, Golden L.; McALLISTER, Devere R.; and VAN EPPS, Gordon A. Recommendations for Establishing a Pure Seed and Certification Program in Bolivia. USU Series 9/67. Pp. 37. La Paz, June 1967. T

844. STOKES, William S. "The 'Revolución Nacional' and the MNR in Bolivia." Inter-American Economic Affairs 12, No. 4 (Spring 1959): 28-53. M T
- Argues that the main ideological influence in the agrarian reform law of 1953 was Marxist-Trotskyite. Agricultural production declined sharply after 1952, and the marketing system broke down. It is estimated that one-third of U.S.-supplied food was diverted to the contraband export trade. Strongly criticizes the U.S. government for supporting a "Marxist-influenced government" which seized power by force and violated individual and property rights.
845. STOUSE, Pierre A.D., Jr. "Regional Specialization in Developing Areas: The Altiplano of Bolivia." N.p.: n.publ., [1971]. Pp. 32. [MACA: GB153 S8r] T
- Discussion by a geographer of soils, vegetation, land forms, and climate. Climate makes crop production subject to frequent failure. Around Lake Titicaca, though, agriculture production could be intensified; and more cold-resistant varieties could be introduced. In general, however, greater reliance should be placed on alpacas and llamas, which are superior to sheep as producers of meat and wool. Little attention is given to problems of marketing, credit, and technical assistance.
846. STRANG, Arthur Innis, III. "A Regional Relative Productivity Land Tax Proposed by the Government of Bolivia to Replace All Domestic Taxes on Agriculture." Ph.D. Dissertation, University of Wisconsin, Madison, 1971. Pp. 214. T Y/E
- "Analysis of the proposed crop rates in relation to incomes data of campesino families show [sic] the tax to be regressive on income. The regressive burden is due in the large part to the simplicity of the tax rate structure. Comparing the tax burden by income levels of geographic regions for which different rates were set indicates little regressivity. Within regions, the data show an increasing burden on income as the area of land owned increases. This result is consonant with the desire of the government to provide an incentive for better utilization of land.
- "The proposed tax when fully effective would significantly raise the revenue received by the national government" [Diss.Abstacts, 31/12A/6249].
847. SUÁREZ de CASTRO, Fernando. Estructuras agrarias en la América Latina. Serie Planeamiento, No. 5. San José, Costa Rica: IICA, 1965. Pp. 258 (pp. 119-140 on Bolivia). T Y/E
[MACA: HD1411 15s 5; LTC: HD1265 A5 S8]
- Discusses the pre-1952 agrarian structure, the agrarian

reform law of 1953, and results of the agrarian reform. The author reports, uncritically, the sharp decline in production in the 1950s recorded in the initial figures; but he notes that the standard of living of the campesinos apparently improved.

848. ----. "La reforma agraria en Bolivia." Agricultura Tropical (Bogotá) 19 (1963): 445-455. [SAIG] T Y/E
- " . . . Concludes that agrarian reform has not led to marked improvements in economic conditions" [LTC, Agr. Ref. L.A. - Bibliog.]. The evidence presented is rather sketchy.
849. SUÁREZ M., Néstor. La industria lechera en Santa Cruz. Boletín Técnico No. 8. Santa Cruz: Misión Británica para la Agricultura Tropical, 1971. Pp. 40. [MACA: S189 Ex72 Sa12bt] M T
- Milk production in the area is 9,000 liters daily. Hygienic conditions are "deplorable." The use of legumes as forage is unknown, and pasture management is poor.
850. SUAZO H.; Carlos. Mejoramiento de la producción agrícola en el altiplano. (Draft.) Proyecto BOL/68/521. La Paz: United Nations, August 1973. Pp. 31 + 132 Tables + Maps. [UN/B] T Y/E
- Studies of the effects of irrigation and fertilizer on potato production indicate that the benefit/cost ratio for using both is favorable. Ideal planting time varies from one area to another.
851. SURCOU MACEDO, Rodolfo. Nacionalismo y revolución integral. La Paz: n.publ., 1972. Pp. 114. [NAL: JL2298 S63 S8] Cr T
- Philosophy and programs of the Falange Socialista Bolivia. Chapter VI (pp. 69-78) is concerned with the agricultural sector. Argues that agrarian reform has been viewed by the government as a land problem, not a human problem; production has also been ignored. Campesinos should be given the purchasing power (e.g., through credit) to expand the market for both agricultural and manufactured goods. Favors increased spontaneous colonization, strengthening of cooperatives, construction of irrigation works, and increased agricultural extension. Also favors compensating landowners for expropriated property.
852. SUTTON, Richard E., and LANE, Bernard. Analysis of Food Production Relative to Nutritional Requirements in Bolivia. Analytical Working Document No. 19. Washington, D.C.: Sector Analysis Division, Bureau for Latin America, U.S. Agency for International Development, March 1975. N
853. ----, and ----. Food Prices and Nutritionally Adequate Diets in La Paz, Bolivia, 1972, 1973, and 1974. Analytical Working Document No. 21. Washington, D.C.: Sector Analysis Division, Bureau for Latin America, U.S. Agency for International Development, September 1975. N

854. TABORGA, Jaime et al. El transporte fluvial en Bolivia. 4 vols. La Paz: Fuerza Naval, Departamento Nacional de Hidrografía y Navegación, 1965. [MACA: GB719 C6e] M
855. Tahal Consulting Engineers, Ltd., and Prudencio, Claros y Asociados Ings. Desarrollo agrícola del valle de Río Abajo, La Paz: Estudio de prefactibilidad. La Paz: Banco Agrícola de Bolivia, April 1970. Pp. 70 + Annexes. [Available in MACA/RDD] T
- Recommends increasing irrigation facilities and providing technical assistance to farmers in this area close to La Paz.
856. TAILBY, Donald. Bolivian Rice Marketing: Steps to Improvement. La Paz: USAID/Bolivia, July 1966. Pp. 99. [MACA: HD9066 T3b; ERS/FDCD] M
- Rice production declined after the demise of the Comité Nacional de Comercialización del Arroz in 1963. Price policy needs to be reformed, grading standards should be introduced, and storage facilities need to be built. Credit is also needed. Administration of a minimum price scheme would be easier if storage facilities were available.
857. ----. "Bolivian Wheat Program." Memorandum. La Paz, 1966. Pp. 17. [MACA: HD9049 W4 T3b] Cr T
- If new seed and fertilizer could be applied to half the present wheat land, new seed alone were planted on the remaining half, and 2,000 hectares of new land were brought into production each year for 10 years, wheat output in 10 years could almost double. This will require both technical assistance and credit. Use of fertilizer alone results in a net loss to farmers.
858. TAKAMIYA, K. Indicative World Plan for Agricultural Development 1965-1985: Survey of Irrigation Potential in South America. Rome: FAO, 1966. Pp. 30. T
- Data on irrigated land, water availability, planned production increases, and project cost estimates.
859. Tate and Lyle Technical Services Limited, and Bookers Agricultural and Technical Services Limited. Bolivian Sugar Industry: Final Report. 3 vols. La Paz(?): Foreign and Commonwealth Office, Overseas Development Administration, Government of the United Kingdom, October 1972. [MACA/RDD] Cr M T
- Despite setbacks in 1971-72, the outlook for the industry was regarded as favorable, with a return to self-sufficiency and fulfillment of the U.S. export quota likely in 1973. Growers' associations, CIECA (the National Sugar Commission), and the Banco Agrícola all need radical reorganization to be

more effective. Attention needs to be given to cane transport and pest control. Research on irrigation is not a top priority item.

860. TERRAZAS FOSSATI, Lionel. Costos de producción de arroz, papa, maíz, trigo, maní y ají en los Departamentos de La Paz, Cochabamba, Chuquisaca, Santa Cruz, Potosí, Tarija y Oruro. La Paz: SAI, 1963. Pp. 186. [MACA: S567 T4c] T Y/I
- Cost-of-production tables, by province, for non-mechanized cultivation using (1) rented animals and (2) own animals. Tables for mechanized production are available for rice (in Santa Cruz).
861. TERRAZAS URQUIDI, A. "El algodón: Posibilidades de su cultivo en Bolivia." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1962. Pp. 73. [UMSS-FCA] M T
862. TERRAZAS URQUIDI, Wagner. Bolivia: País saqueado. La Paz: Ediciones Camarlinghi, 1973. [NAL: HC182.5 T4] T
- Criticizes development policies based on the export of minerals and the neglect of agriculture, whose natural resource base has deteriorated because of lack of attention. Recommends a strengthening of university programs in agronomy, biology, and ecology; creation of a semi-autonomous Corporación de Desarrollo Agropecuario to process and market key agricultural products; and a reorganization of the Ministry of Agriculture.
863. ---- et al. Mapa de Bolivia: Zonas erosionadas. La Paz: MACA, 1975. T
864. THOMAS, James H., and GUZMAN, Aníbal. Manual para forrajes para Bolivia. USU Series 2/73. La Paz, 1972. Pp. 80. T
865. THOME, Joseph R. "Expropriation and Title Distribution under the Bolivian Agrarian Reform: 1953-1967." Madison, 1970. (Revised, condensed version of a preliminary draft report prepared for USAID/Bolivia in 1967). [LTC Files Bo 3 T3] T Y/E
- " . . . Concludes that 'given its inadequate resources, the Consejo [Nacional de Reforma Agraria] actually performs as efficiently as could be expected The Bolivian agrarian reform suffers from many deficiencies, but yet most of these can really not be blamed on its executing agencies.' The author recommends that USAID offer 'a certain amount of aid in return for increased government financing in this sector' " [LTC, Agr.Ref.L.A.-Bibliog.].

866. THOMPSON, Stephen Ide. "San Juan Yapacani: A Japanese Pioneer Colony in Eastern Bolivia." Ph.D. Dissertation, University of Illinois at Urbana-Champaign, 1970. Pp. 232.

T Y/E

"This study analyzes social stability and change in San Juan Yapacani, a ten year old pioneer community of Japanese colonists in . . . eastern Bolivia

"While this particular colonization experiment has been an objective success from the point of view of the government of Bolivia, it is little short of a subjective disaster in terms of the adjustments of individual colonists, and it is concluded that this is likely always to be the case when pioneers are drawn from modern, highly industrialized societies and forced to undergo the relative high degree of cultural deprivation which initially accompanies frontier conditions" [Diss.Abstracts, 31/05B/2435].

867. THORN, Richard S. "The Economic Transformation." In Beyond the Revolution: Bolivia Since 1952, ed. James M. MALLOY and Richard S. THORN. Pittsburgh: University of Pittsburgh Press, 1971. Pp. 157-216.

Cr M T

President Paz and the MNR viewed the agrarian reform from a liberal (i.e., individual ownership) rather than a socialist (collective farm) standpoint. But prior to 1952 the MNR had no real program for overcoming low agricultural productivity. After 1952, total production and marketings fell, though on-farm consumption increased. There was still no attention given to increasing productivity. Finally, largely because of U.S.-financed highway construction and credit programs, agricultural output began to rise, especially in the Oriente. Colonization efforts have had relatively little success.

868. TIGNER, James L. "The Ryukyans in Bolivia." Hispanic American Historical Review 43 (May 1963): 206-229.

Y/E

Colonization by Ryukyans in the Santa Cruz area is generally regarded as a success.

869. TORRICO, José O., and TORRICO, Emma P. de. "Informe: Alimentación y nutrición: Chuquisaca-Tarija." Typewritten. La Paz, 29 November 1973. 28 l. [MACA: TX551 B6 T6i]

N

Consumption of calories, animal proteins, calcium, vitamin A, thiamine, riboflavin, and niacin is deficient; diets are adequate in total proteins, iron, and vitamin C (1971 survey data).

870. TORRICO ARZE, Armando. "The Alto Beni Project, Bolivia." In Change in Agriculture, ed. A.H. BUNTING. New York: Praeger Publishers, 1970. Pp. 445-448. [NAL: S401 15 1968] M Y/E
- Brief description of this directed colonization project. In 1965, it was estimated that settlers' incomes were 50% greater than they had received on the Altiplano; 80% of the settlers remained. Abandonment of access roads has resulted in wastage of a high proportion of some crops because trucks can no longer use the roads. None of the settlers have yet repaid their loans.
871. ----. "The Colonization of Tropical Bolivia." A.B. Thesis, Wadham College, Oxford, 1956. Pp. 90. [MACA: HD492 T6] T Y/E
- Describes agricultural and economic conditions. Recommends that colonization be based on (fairly large) family farms.
872. ----. El cultivo del té en Bolivia. La Paz, 1974. Pp. 15. [MACA: SB271 T6c] T
- Brief description of tea growing areas in Bolivia. Brief description of recommended practices; no economic analysis.
873. ----. La industria lechera en el altiplano norte. La Paz, 1974. Pp. 10. [MACA: SF239 T6i] M T
- Brief history and description of the dairy industry in the Altiplano; no economic analysis.
874. ----; AYALA ZAMBRANA, Jorge; and GARCÍA AGREDA, Emilio. Estudio de la industria avícola en el valle de Cochabamba. La Paz: SAI, 1962. Pp. 28. [MACA: SF488 B6 B6i] M T
- Optimum conditions exist for raising poultry. The major problem is high feed costs. Small farmers can significantly raise their incomes using modern practices, for which credit and technical assistance are needed.
875. ----; TERRAZAS, Lionel F.; and SALAS DURÁN, Raúl. "Estudio sobre producción, costos, comercialización e industrialización del trigo en Bolivia." La Paz: SAI, 1962. Pp. 54. [Available in MACA/RDD; MACA: HD9049 W4 T6] M T
- Covers the Departments of Cochabamba, Chuquisaca, Potosí, Tarija, and Santa Cruz (Valle Grande). Contains data on production costs; milling capacity, production, and production costs; and marketing. Argues that import policy has restricted domestic production, and that Bolivia should aim for self-sufficiency in wheat production. Marketing problems are seen as major obstacles to increased production; these include: poor roads, shortage of trucks, limited milling capacity, and price and marketing policies. Annex 1

contains a proposal for domestic production of machinery and current inputs.

876. TORRICO PRADO, Benjamín. "Historiales de colonias del Chapare." Typewritten Report. La Paz: SAI, 1962. 17 l. [MACA: HD492 T63]

M

Brief summaries of historical background, production, and marketing in 13 colonies.

877. ----. Informe de investigación: Colonias y ex-haciendas Caranavi y Chapare. La Paz: SAI, 1962. Pp. 14. [MACA: HD492 T63c]

T Y/E

Questionnaires revealed that the great majority of settlers in the Caranavi area were Aymara speakers from the Altiplano; approximately half were displaced artisans or industrial workers. The insecurity of agricultural income has led to a high incidence of abandonment. Conditions seem to be better in Chapare, where coca is the major crop. Production techniques are primitive. The author argues that directed colonization should replace spontaneous colonization in these areas. No economic analysis.

878. TORRICO ZEBALLOS, D. "Efectos de la temperatura en el cultivo tardío de dos variedades de maíz." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1972. Pp. 45. [UMSS-FCA]

T

879. UGARTE, Antonio. "Tarija: El caso de una sociedad en transición." Estudios Andinos 2, No. 1 (1971): 61-75.

T

Study of modernization in three communities. Adoption of new agricultural techniques has been slow, both because the campesinos fear taking risks and because of communication problems with the extension agent, who does not visit individual farms but confines his work to large-group demonstrations. Farmers know production costs of corn, the principal crop, but not of alternative crops such as wheat and potatoes.

880. United Kingdom. British Mission in Tropical Agriculture. La agricultura tropical en Bolivia. La Paz: Ministerio de Economía, 1962. Pp. 61. [MACA: S189 M5; CIAT]

M T

Overview of agricultural and economic conditions; suggestions for training Bolivian technicians; and proposals for a program of technical assistance.

881. ----. ----. "Colony Cuatro Ojitos: A Study of the Community." Typewritten. [Santa Cruz]: July 1966. Pp. 31. [CIAT: MBAT Files No. 14]

M T

The first colonists were brought in by the Corporación Boli-

vianò de Fomento, in the 1950s. No technical assistance or orientation was provided. Even in the mid-1960s, colonists complained about lack of technical assistance. Most felt that they had sufficient land. Support for cooperatives was weak because of past failures in the area and a lack of mutual trust among colonists. Agriculture is still basically for subsistence purposes, but prospects for commercial agriculture were boosted by the completion of a paved road to Montero in December 1965.

882. United Nations. Development Program. Desarrollo de los recursos de aguas en el altiplano: Bolivia--Conclusiones y recomendaciones del proyecto. DP/UN/BOL-68-514/3. New York, 1974. Pp. 29 + 8 maps. T

The area of Viacha-Irpa Chico is the most favorable in the Northern Altiplano for development of underground water. Priority should be given in this area to utilizing these resources for irrigation. Continued hydrological research in other parts of the Altiplano is recommended.

883. ----. ---- (Special Fund). Improvement of Agricultural Production in the Altiplano. Document No. DP/SF/R.6 Add 3. New York, April 1968. Pp. 8. [MACA: HC60 B6 Un5r] T

Recommend approval of a \$1 million project to assist Altiplano farmers in improved agricultural and farm management practices.

884. ----. Economic Commission for Latin America. Análisis socio-económico de la región de Santa Cruz de la Sierra. Versión preliminar para discusión. 1 vol. + 8 Annexes. Santa Cruz: C.OO.PP., 1972. [C.OO.PP.: 06.05.103] Cr M T Y/E

Study prepared by ECLA at the request of the IDB, which was studying the feasibility of establishing a Bolivian port at Puerto Busch on the Paraguay River. Although the study identified various agricultural export possibilities, it concluded that the port would be justified only if the Mutún iron ore deposits were exploited.

885. ----. ----. El desarrollo económico de Bolivia. 2 vols. + Summary. Document No. E/CN.12/430. La Paz, 1957. Pp. 496 + 156. [MACA: HC181 Un2] Cr M T Y/E

Comprehensive economy-wide study, with sector analyses. Argues that short-run development needs in agriculture were neglected, with too much emphasis placed on the long-run development of the Santa Cruz area, where production is limited to certain crops, soil conditions are uncertain, transport costs are high, and production costs will remain high for some years. Exchange-rate policy favored imports and discouraged domestic production. More attention needs to be given to Altiplano agriculture; more research, extension, and credit are needed.

886. ----. ----. Development of Agriculture in Bolivia. Document No. E/CN.12/218/Add.2. Mexico, May 1951. Pp. 103. [MACA: S403 B6 Ec 7 (English) and HD1866 Un2 (Spanish)] Cr M T Y/E
- A detailed survey, emphasizing technological backwardness. The land tenure system is regarded as the fundamental reason for agricultural stagnation.
887. United Nations Educational, Scientific, and Cultural Organization (UNESCO). "La agricultura y la educación agropecuaria en Bolivia." Revista de la Facultad de Ciencias Económicas (Cochabamba) 5 (June 1964): 147-207. [MACA: HC181 C6r] T
- Discusses the deficiencies in agricultural education and suggests programs at various levels for helping to overcome these deficiencies.
888. ----. Technical Assistance Administration. Report of the United Nations Mission of Technical Assistance to Bolivia ("Keenleyside Report"). Document No. ST/TAA/K/Bolivia/1. New York, October 11, 1951. Pp. 128. [MACA: S403 B6 Un2] Cr M T Y/E
- A major economic survey of Bolivia just prior to the Revolution. Recommends the formation of cooperatives, an effective agricultural credit system, carefully planned colonization, and a strengthened Ministry of Agriculture. On the Altiplano, "the land tenure system almost completely blocks the development of a progressive agriculture."
889. United States. Agency for International Development. Mission to Bolivia. Agricultural Development in Bolivia: A Sector Assessment. Document No. LA/DR-DAEC/P-75-6. La Paz, August 1974. Cr M N T Y/E
- A detailed survey of agricultural problems and prospects. Discusses, among other needed actions, required changes in the government's policies and programs. Summarizes past, existing, and planned programs of the U.S. government and other foreign agencies.
890. ----. ----. ----. Bolivia: Health Sector Assessment. La Paz, January 1975. Pp. 489. [SAIG] N
- Includes information on nutrition. Sample surveys show the incidence of malnutrition in pre-school children to be 40-50 percent. Data from several nutrition surveys are summarized. Agricultural production trends and their implications for nutrition are reviewed.
891. ----. ----. ----. Bolivian Nutrition Sector Assessment. La Paz, 1976. Pp. 97. N

892. ----. ----. ----. Desarrollo rural en Bolivia. Report of the Consultant Group of the U.S. Department of Agriculture, the Association of State Universities and Land Grant Colleges, and USAID. Mimeographed. La Paz, 1964. Pp. 116. [MACA: S189 D4] Cr M T
- Recommendations include U.S. or Bolivian government assistance to the Banco Agrícola, free market determination of agricultural prices, continued technical assistance in wool production, strengthening of very weak agricultural programs at the university and secondary levels, more attention to research and extension, and suggestions for a variety of crops.
893. ----. ----. ----. Desenvolvimiento económico de Bolivia: Su política y sus instituciones. La Paz, 1966. [MACA: HC181 Un22d] Cr T
- An overview of the agricultural sector and its problems is presented on pp. 61-69.
894. ----. ----. ----. "The Market for Wheat Milling By-Products." La Paz, July 1969. Pp. 31. [SAIG; MACA: HD9056 Un5m] M
- "The major short-run recommendation of the present paper is the need for drastic price reductions to move out present stocks of by-products, give impetus to animal feeding programs, and enable millers to recover their capital tied up in inventories. To the extent that bran exports can aid in this process, they are likewise recommended Over the intermediate and long run, the solution will have to lie in increased animal feeding programs, combined with revisions in the official pricing policies for beef, and encouragement for meat exports" [USAID].
895. ----. ----. ----. "Preliminary Historical Review of Rural Development Division." Dittoed. La Paz, 1970. [SAIG] Cr M T Y/E
896. ----. ----. ----. "Rural Development--Bolivia, 1969-1974." La Paz, January 1969. [SAIG] Cr M T Y/E
- Proposed AID activities to help achieve the following objectives: (1) a 5% annual increase in food production, (2) integration of the campesino into the national market, and (3) improvements in Bolivia's balance-of-payments position. Considerable attention is given to wheat, potatoes, sheep, llamas, and alpacas.
897. ----. ----. ----. "Toward a Rational Wheat Strategy for Bolivia." La Paz, 1976. [SAIG] M T
- Wheat is grown mainly by small farmers using labor-intensive methods with relatively little animal power, let alone machinery. Marketing and storage facilities are inadequate, and

much of the domestic crop never reaches the mills. Given much higher net returns for potatoes and corn, significant wheat expansion in traditional areas is unlikely. In the Santa Cruz area, the economic viability of irrigated wheat production has not yet been demonstrated. Changes in price policy may stimulate more production, but on the whole the supply response capability is limited.

898. ----. Congress. 86th, 2nd Session. Senate. Committee on Government Operations. Permanent Subcommittee on Investigation. Administration of U.S. Foreign Aid Program in Bolivia. Washington, D.C.: U.S. Government Printing Office, 1960. Pp. 28. [U.S. Dept. State: HC182 U5] T
- Highly critical of the administration of U.S. aid to Bolivia by ICA and USOM/Bolivia. Among the specific findings: "The waste and inefficiency characterizing servico operations . . . , particularly the SAI, from 1954 to 1957, is exemplified by the inadequacy or absence of basic receipt and accounting records; injudicious and arbitrary procurement of millions of dollars worth of machinery and equipment in excess of needs, much of it not adapted for use in Bolivia; misuse of and improper storage and maintenance of costly equipment; misuse of counterpart funds on unauthorized projects; and failure to become knowledgeable concerning losses of valuable equipment and machinery"
899. ----. Department of Agriculture. Economic Research Service. Bolivian Agriculture: Its Problems, Programs, Priorities and Possibilities. Report of the United States Department of Agriculture Mission to Bolivia, June 25-August 17, 1962. Washington, D.C., 1962. [ERS/FDCD] Cr M T Y/E
- Recommended institutional priorities are (1) credit, (2) education, (3) marketing, and (4) land and water development. Recommended commodity priorities are (1) wheat, (2) oilseeds, (3) livestock, and (4) specialty crops for export (tropical fruits, coffee, cocoa, nuts, fibers, rubber, and timber) and for domestic consumption (cotton and other fibers, yucca, and timber). Considerable attention is given to marketing.
900. ----. ----. ----. Indices of Agricultural Production for the 20 Latin American Countries. Washington, D.C., annual publication. T
901. ----. ----; United States. Agency for International Development; Association of State Universities and Land Grant Colleges. Agricultural and Rural Development in Bolivia. Report, April 13-June 9, 1964. [La Paz, 1964]. [ERS/FDCD] [Preliminary--Not for Publication] Cr M T Y/E

902. ----. Department of Defense. Interdepartmental Committee on Nutrition for National Defense. Bolivia Nutrition Survey. Washington, D.C.: U.S. Government Printing Office, 1964. Pp. 281. [SAIG; ERS/FDCD] N
- Detailed results of a survey conducted during May-July 1962 among military personnel and civilians. Among the military, the most serious deficiency was in riboflavin; iron, calcium, and ascorbic acid intakes were generally satisfactory, while some deficiencies were present in vitamin A, calories, and proteins. Among the civilians, there were serious deficiencies in riboflavin, calcium, animal proteins, and vitamin A.
903. ----. Foreign Operations Administration. Report of the Santa Cruz Area Development Mission. Washington, D.C., 1954. Pp. 64 + Appendices. [ERS/FDCD] Cr M N T Y/E
- The Santa Cruz area, in a relatively short time, could produce almost all the foods Bolivia is importing; rice could be exported. It is favorably situated with respect to existing or planned transportation routes. It is argued that "the most desirable and efficient way" to quickly bring the land under cultivation would be to resettle 5,000 Southern European farm families in the area in the next five years, with additional immigration as more land becomes available. Migration from the Altiplano and Valles, it was felt, would be slow because of social, economic, and climatic obstacles; colonization plans based on resettlement of highland campesinos would contribute little to the immediate food shortage problem. Still, the campesinos should not be ignored.
904. ----. National Research Council. Food and Nutrition Board. Recommended Dietary Allowances. Publication No. 589. Washington, D.C., 1958. N
905. ----. Operations Mission to Bolivia. Point Four in Bolivia, 1942-1960. La Paz, 1960. [Available in MACA/RDD] T
- Contains a summary of U.S. technical assistance in agriculture.
906. Universidad Mayor de San Simón. Departamento de Estudios Agrarios. Informe del director . . . sobre el viaje de estudios realizado a Vacas. Cochabamba, 1950. [LTC Files Bo 93.2 B6d] M T Y/E
- "A report on the estates of the municipality of Vacas (near Cochabamba) and the living and working conditions of the Indians who rent them. Concludes that the land should be sold to the renters, cooperatives should be formed, and medical facilities should be provided" [LTC, Agr.Ref.L.A.-Bibliog.].
907. ----. Instituto de Estudios Sociales y Económicos. Cuadros estadísticos de producción agrícola tropical: Chapare-Yungas. Cochabamba, 1973. 43 Tables. [Available in MACA/RDD] M N T Y/E

908. ----. ----. [Encuesta socio-económico del Chapare]. Cochabamba, In process. [Copy of questionnaire in SAIG] M N T Y/E
- Contains demographic data; consumption data; and data on agricultural production, marketing, employment, income, and technology. Questionnaire was administered to 680 persons and is awaiting processing.
909. Universidad Nacional Mayor de San Simón. Instituto de Estudios Sociales y Económicos. Producción y comercialización de la coca. Cochabamba, 1972. Pp. irregular + 15 Tables. [MACA: RS165 C5 D3p] M T Y/E
- Survey of the coca-producing areas in the Chapare and Yungas. Coca is a relatively riskless crop, requiring little care; transport costs are low in relation to value, whereas they tend to be high for alternative crops. In the Chapare, coca is far more profitable than rice, corn, or other crops; this will make it difficult for farmers to switch to other crops. In the Yungas, profits per hectare for coca are more than 50% higher than for coffee.
910. URIOSTE F. de C., Miguel. Conducta económica del campesino e incorporación de tecnología moderna en el proceso productivo: El cultivo de la papa en el altiplano paceño (Bolivia). Documento de Trabajo No. 06/75. La Paz: Instituto de Investigaciones Socioeconómicas, September 1975. Pp. 232. [MACA: HD9235 P8 U7c] T
- Potatoes are the base of the campesino's diet. Families with little land tend to use modern inputs, but total farm production, despite higher yields, is often lower than on larger farms not using modern technology. Technology decisions are not based on education, extension, etc., but primarily on the need to supply a basic minimum production. Only 21% of potato production on the North Altiplano is marketed, and in the Central Altiplano only 13%. Use of modern inputs has increased significantly but is still deficient. Storage facilities are primitive.
911. ----. Las innovaciones tecnológicas en el Norte del Altiplano Boliviano y la economía campesina. Documento de Trabajo No. 01/76. La Paz: Instituto de Investigaciones Socioeconómicas, August 1976. Pp. 25. [MACA: HT421 U5i] T
- Survey of Altiplano campesinos identified three groups: (1) those who demand modern inputs to increase output and sales; (2) non-commercially oriented campesinos who demand modern inputs to compensate for poor quality and small amount of land; and (3) campesinos with no interest in using modern inputs. Lack of systematic research and extension, poor price policies, and lack of credit seriously limit campesino demand for modern inputs. Poor price policy has often offset good extension work.

912. UNZUETA Q., Orlando. Mapa ecológico de Bolivia: Memoria explicativa. La Paz: Ministerio de Asuntos Campesinos y Agropecuarios, 1975. T
- Description of vegetation in various ecological zones. Includes brief discussions of potential land use.
913. URQUIDI MORALES, Arturo. Bolivia y su reforma agraria. La Paz: Editorial Los Amigos del Libro, 1969. Pp. 199. [NAL: HD483 U7] M T
- "A useful, introductory volume on the history and current status of Bolivia's agrarian structure, written by one of the country's leading sociologists. Contains a concise summary of agrarian legislation" [LTC, Agr.Ref.L.A.-Bibliog.].
914. ----. Las comunidades indígenas en Bolivia. Cochabamba: Editorial Los Amigos del Libro, 1970. Pp. 278. [NAL: GF531 U7] T Y/E
- Description of the social and economic structure of indigenous communities. Argues that cooperatives would not be consistent with traditional community structures; because they presume private, individual plots, they would in fact imply the disintegration of traditional community structure.
915. ----. "Consideraciones de orden doctrinal sobre la reforma agraria en Bolivia." Estudios Agrarios (México) 1, No. 2 (196.): 13-50. T Y/E
- "An important essay Concludes that agrarian reform has been seen as a means of liberating productive forces from the feudal regime" [LTC, Agr.Ref.L.A.-Bibliog.].
916. ----. El feudalismo en América y la reforma agraria boliviana. Cochabamba: Imprenta Universitaria, 1966. Pp. 411. [NAL: HD483 U72] T Y/E
- " . . . Discusses the 1953 land reform law, Indian communities and cooperatives, reactionary and leftist opinions of the reform, the roles and reactions of various political parties regarding land reform, and finally, the character of the Bolivian revolution. Concludes that the latter is essentially a democratic, anti-imperialistic, and anti-feudal movement, but that there is a large gap between its theories and its achievements" [LTC, Agr.Ref.L.A.-Bibliog.]. Bolivia, it is argued, still suffers from a high degree of external dependence: too much attention has been given to mining, and not enough to the development of domestic industry. The agrarian reform has stagnated; large farms still exist.

917. ----. Plan general para el estudio de la reforma agraria. Cochabamba: Imprenta Universitaria, 1953. T Y/E
918. ----. "La reforma agraria en Bolivia." América Indígena 32 (July-September 1972): 865-879. M T Y/E
- "The author feels that encouragement of agricultural development, whether on an individual or cooperative basis, is necessary in order to overcome the stagnant state of Bolivian agriculture and to stimulate the development of the productive forces through the adoption of modern cultivation techniques, the broadening of the domestic market, the favoring of industrialization, the elimination of the pre-capitalist form of production and to overcome, definitively, the phase of feudal organization in rural areas" [from the English Summary].
919. URQUIETA MOLLEDA, A. "Costos de alimentación de vacas lecheras en lactación en base de ensilaje de maíz, banana, alfalfa y concentrado." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1970. Pp. 49. [UMSS-FCA] T
920. Utah State University. Response of Selected Crops to the Climatic and Agronomic Conditions of the Bolivian Altiplano. USU Series 8/72. La Paz, 1971. Pp. 93. T
- Planting of forage crops should be encouraged, and research should continue. The extension service should promote the making of hay and silage to provide high quality winter wheat.
921. Utah State University Advisory Group, and ALZÉRRECA, H. Observations and Suggestions Regarding Management of Native Range Resources and Utilization of the National Reserve of Ulla-Ulla. USU Series 2/75. La Paz, 1975. Pp. 20. T
- "There is a serious disequilibrium between the native range feed resources of the Suchas Valley and the animal population. It appears to be worsening. There are clear indicators of environmental deterioration for livestock, wildlife and even people" [USU-ALZÉRRECA]. Productivity can increase 8-10 times with proper range and livestock management.
922. VALENCIA, Jorge; MONZÓN, Miguel; and MALDONADO, Gonzalo. La situación agropecuaria nacional: Estudios socio-económicos regionales, y planes de producción agropecuaria de las zonas de colonización CBF-BID. La Paz: Corporación Boliviana de Fomento and Banco Interamericano de Desarrollo, June 1965. Pp. 165. [MACA: HD492 V3s] Cr M T Y/E
- Discussion of import substitution and export possibilities in the Alto Beni, Chimoré, and Yapacaní areas. Descriptions of

soil and climatic conditions; demographic data; and information on credit, marketing, and available technical services are also provided. For each area, the growth of gross income per colonist over a 10-year period is estimated.

923. VALENCIA VEGA, Alipio. "Reactualización de la reforma agraria boliviana." América Indígena 32 (July-September 1972): 881-905. M T Y/E
- Historical review of land tenure and an evaluation of post-1952 events by the former director of the Consejo Nacional de Reforma Agraria. Argues that agrarian reform has been incomplete: little technical assistance has been provided, and inheritance laws have encouraged further subdivision of farms. The government is criticized for using campesino syndicates for political purposes and for paying insufficient attention to cooperative forms of production and marketing.
924. ----. "La reforma agraria en Bolivia: Su programación nacional." In Proceedings of the Seminario sobre Programación y Administración de la Reforma Agraria, Maracay, Venezuela, 1964. Bogotá: IICA, 1964. Pp. 39-86. [MACA: HD1306 S42s; LTC: HD105 S25 1964] T Y/E
- "A paper by the President of Bolivia's Consejo Nacional de Reforma Agraria. Presents a nonanalytical summary of Bolivia's agrarian problems and the reform. Discusses current programs of reform and colonization, and plans for the future" [LTC, Agr.Ref.L.A.-Bibliog.].
925. VALLE ANTELO, Guido, and CÉSPEDES TORO, Antonio. Financiamiento externo del desarrollo de Bolivia. Washington, D.C.: Inter-American Development Bank, 1973. Pp. 235. [MACA: HG3881 V3f] Cr
- Summaries of the loans made by the IDB to Bolivia.
926. VAN ROOIJ, Jan P. "Jornadas de política agropecuaria: Asistencia técnica internacional al sector agropecuario." Mimeographed. La Paz: FAO, 1972. [UN/B] T
927. VANDERSLICE, Lane. "El impacto de la tecnología en el campo boliviano." Typewritten. New Brunswick, New Jersey: Rutgers University, 1972. T
928. VARGAS de la FUENTE, Eulogio. "Estudio socio-económico en el valle alto de Ucureña." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1966. Pp. 118. [UMSS-FCA] N T
- Largely descriptive study of an area devoted mainly to subsistence farming, with small farmers receiving little if any government assistance. Still, two-thirds of 140 small farmers interviewed said their nutritional levels had improved since

the agrarian reform. High priority needs for the area are soil studies, extension services, and irrigation. There is good potential for fruit production.

929. VARGAS PADILLA, Emilio. "Efecto de nitrógeno, fósforo y potasio en el rendimiento de cebolla en Caramarca." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1969. Pp. 63. [UMSS-FCA]

T

Onions have been one of the most important and productive crops in the province of Quillacollo; 90% is marketed. But continued cultivation of this crop damages the soil, and few producers use crop rotation or fertilizers to replenish the soil. The best fertilizer response and highest profits are obtained with 50 kg./ha. of P; K adds little, and there is no response to N by itself or in combination.

930. VÁSQUEZ ARÉVALO, Alfredo. "Comercialización del cacao producido en el Alto Beni." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1976. Pp. 58. [UMSS-FCA]

M

931. VÁSQUEZ BARRIONUEVO, Daniel. "Posibilidades de desarrollo agropecuario de las ex-haciendas Rummy Corral y Alalay (Provincia Mizque-Departamento Cochabamba)." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1975. Pp. 155. [UMSS-FCA]

Cr M T

Largely descriptive study with general recommendations for improved practices. The required role of government policy is not carefully defined. Recommends directed colonization as a partial solution to the minifundia problem, with colonists organized into cooperatives. Farmers in the two communities studied received no credit and very little technical assistance.

932. VELASCO, J. Cultivo del trigo en Santa Cruz. Boletín Informativo No. 4. La Paz: Instituto Nacional del Trigo, 1973. Pp. 31. [MACA: HD9049 W4 J5b 4; SAIG]

T

Report on research results.

933. VELASCO, Reynaldo; VISCARRA, Mario; and MENDOZA, Jaime. Producción y comercialización de café en las Provincias de Nor y Sud Yungas del Departamento La Paz. La Paz: SAI, 1962. Pp. 28. [MACA: HD9199 B6]

M T

Production of coffee is relatively small but of high export quality. Producers are subject to the swings of world market prices, since prices paid by intermediaries follow world price trends. Technical assistance has been minimal, and production techniques are primitive.

934. VELASCO GONZÁLEZ, R. "El desarrollo agrícola, crédito y aplicación a la economía agrícola de Bolivia." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1960. Pp. 48. [UMSS-FCA] Cr T
935. VELLARD, Jehan. "Problèmes agraires de la Bolivie andine." Civilisations 20 (1970): 227-239. M T Y/E
- "Describes prereform social and production systems of Bolivian haciendas and communities. Notes extreme population pressure and rural unrest. Outlines the 1953 agrarian reform law, its intent, and shortcomings. Cooperation is seen as a failure, as is colonization. Peasants continue to live much the same as before. Productivity has fallen. No documentation is presented" [LTC, Agr.Ref.L.A.-Bibliog.].
936. ----. "La réforme agraire en Bolivie." In Civilisations des Andes: Evolutions de populations du haut-plateau bolivien, by the author. Paris: Gallimard, 1963. [LTC Mem F3341 A5 V4] T Y/E
937. VERA ROSAS, Clemente. "Breve análisis económico de los cultivos de la papa y el maíz en el valle central de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1967. Pp. 84. [UMSS-FCA] T Y/E
- Argues that farmers make many mistakes because of a lack of economic and technical information. To remedy this situation considerable technical assistance and credit are needed. Compares yields, production costs, and profits using oxen vs. tractors for plowing. For potatoes, plowing with a tractor supposedly raises profits per hectare about 25 percent, while for corn the increase is not statistically significant. How and why small farmers should obtain tractors is not made clear.
938. VICKERS, M.E.H. Guía para el cultivo del algodón en el distrito de Santa Cruz, Bolivia. Boletín Técnico No. 19. Santa Cruz: MACA and MBAT, Estación Experimental de Saavedra, 1970. Pp. 21. [CIAT] T
939. ----. Guía para el cultivo de bananas en el distrito de Santa Cruz, Bolivia. Boletín Técnico No. 42. Santa Cruz: MACA and MBAT, Estación Experimental de Saavedra, 1972. [CIAT] T
940. ----. Guía para el cultivo de la caña de azúcar en el distrito de Santa Cruz. Boletín Técnico No. 42. Santa Cruz: MACA and MBAT, Estación Experimental de Saavedra, 1972. [CIAT] T
941. VILDOSO, Leandro, and SALAMANCA, Jaime. Variedades de trigo 1973. Boletín Informativo No. 1. La Paz: Ministerio de Agricultura y Ganadería, March 1973. Pp. 28. T
- Results of tests and recommendations for adoption of new varieties, by region.

942. VILLALOBOS SANJINES, C. "Perspectivas y análisis económico de la producción y comercialización de carne bovina en Reyes, Beni." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1975. Pp. 108. [UMSS-FCA] M T
943. VILLARROEL ARISPE, H. "Estudio para el mejoramiento de la quinua." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1967. Pp. 74. [UMSS-FCA] T
944. ----, and ARANCIBIA B., R. Costos de producción de papa y trigo en la Pampa de Lequezana. Circular de Investigación No. 1. Chinolí: Estación Experimental de Chinoli, 1973. Pp. 13. [MACA: S189 Ex72 C5c 1] T Y/E
945. VILLARROEL BLANCO, Luís. "La desnutrición infantil en Bolivia." Revista de la Facultad de Ciencias Económicas (Cochabamba) 5 (June 1964): 72-92. N
- Children in Cochabamba were classified as undernourished if their weight was less than 89% of what was considered normal for their age. No data on caloric, protein, or vitamin deficiencies.
946. VILLARROEL CLAURE, Ramiro. Mito y realidad del desarrollo en Bolivia. Cochabamba: Editorial Los Amigos del Libro, 1969. Pp. 299. [NAL: HC182 V5] M T
- Criticism of the "local oligarchy" which maintains Bolivia in a position of external dependence. Argues that PL 480 aid retarded agricultural and industrial growth. Calls for an anti-capitalist revolution. There are few practical policy suggestions.
947. VILLARROEL TAPIA, J. "Introducción y adaptación de variedades mejoradas de maíz en el valle de Mizque." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1970. Pp. 50. [UMSS-FCA] T
948. VILLARROEL VILLARROEL, Rogelio. "Deteriorio de la caña de azúcar después del corte." Thesis for Degree of Ingeniero Agrónomo, Universidad Gabriel René Moreno, Santa Cruz, 1976. T
949. VILLEGAS R., G.M. "Control de malezas en caña y hoja: Con herbicidas pre-emergentes, cultivos y carpidas." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1970. Pp. 65. [UMSS-FCA] T
950. VISCARRA AYALA, Mario. "Estudio sobre la producción y comercialización de la lana de auquénidos." Typewritten. La Paz: SAI, 1960. 24 l. [MACA: HD9890 V5] Cr M T

Argues that the government should devote more resources to llama-alpaca production, including technical assistance in production and marketing. A special credit agency should be established.

951. VIVADO PIZARRO, Manuel. La ganadería bovina de carne en el subtrópico oriental: Estudio de prefactibilidad. 3 vols. La Paz, April 1966. [MACA: SF196 B6 V5e] [English version available in ERS/FDCD] Cr M T
- Comprehensive survey of the cattle industry in the Eastern lowlands, with considerable statistical data. Estimates of cattle numbers are subject to considerable error, but the cattle population seems to be declining. Of the 41 slaughterhouses, 35 are in the Beni, 4 near the city of Santa Cruz, and 2 in the Chaco; only 8 have refrigeration facilities in operation. Most marketing from the Beni is by air. Credit may be extended by the Banco Agrícola de Bolivia for up to 12 years, but the 12% interest rate is relatively high. Ranchers must generally provide 20% of project costs and a guarantee of 150% of the loan value.
952. WALES, Michael L., and PRESTON, David A. "Peasants and Smugglers: Frontier Trade between Peru and Bolivia." Inter-American Economic Affairs 26, No. 2 (Autumn 1972): 35-50. M
- Eggs and cheese flow from Peru to Bolivia; corn and fruit (peaches, prickly pear) flow in the opposite direction. The inflow of cheap manufactured goods has altered consumption patterns throughout the northeast Altiplano.
953. WALINSKY, Louis J. Economic and Policy Implications of Bolivia's Ten-Year Plan. La Paz: USAID, 1963. M T Y/E
954. WARD, Charles R. An Assessment of the Entomological Problems of Agriculture in Bolivia. Working Paper No. 002/76 (Final). La Paz: Consortium for International Development, August 1976. Pp. 30. [SAIG] T
- Few trained entomologists are available, and investment in entomological training and research can have high payoffs.
955. WARRINER, Doreen. Land Reform in Principle and Practice. Oxford: Clarendon Press, 1969. Pp. 241-248 on Bolivia. M T Y/E
- Summarizes effects of the agrarian reform, seen to be favorable from the campesinos' viewpoint despite problems of implementation. Critical of exchange-rate and domestic-price policies hindering agricultural production. Notes the campesinos' hostility to cooperative farming and the lack of success of cooperative ventures.
956. WATKINS, G.M. "Report of a Brief Study of Bolivian Agriculture, November 26 to December 17, 1974." La Paz: USAID/Bolivia, December 17, 1974. Pp. 28. [SAIG] T
- Evaluation of agricultural research efforts, with comments also on extension services, which are said to be grossly underfunded.

957. WEIL, Thomas E. et al. Area Handbook for Bolivia. 2nd ed. Washington, D.C.: U.S. Government Printing Office, 1973. Pp. 417.

Cr M N T Y/E

One of the comprehensive country handbooks compiled by researchers at American University. Contains valuable leads on agricultural development issues. The bibliography is also valuable.

958. WENNERGREN, E. Boyd. Trans. by Percy AITKEN. Una evaluación del programa de Utah State University y USAID en producción y mercadeo ovino en Bolivia. USU Series 9/75. La Paz, September 1974. Pp. 86.

M T Y/E

Cost-benefit analysis of the 4 phases of the program (breeding stock, improvement of sheep production, wool shearing, and alfalfa production) shows high annual rates of return. (The data, however, exclude Ministry of Agriculture expenditures.) The program has also had a positive impact on net farm income. A system of wool grading has been established. High-yield native grasses have been discovered. Lack of forage has hindered livestock production increases, but forage production can increase 10-20 times the existing level. The communal-property system on the Altiplano leads to overgrazing.

959. ----. An Evaluation of the Utah State University/USAID Cereals Program in Bolivia. USU Series 33/75. La Paz, April 1975.

M T Y/E

Although causal relationships cannot be conclusively argued, it is said that trends toward increasing yields per hectare are likely attributable to the contractor's efforts. More than 4,000 lines and varieties of wheat were tested, and a seed multiplication program was established. Numerous courses were held in the traditional production areas to instruct campesinos in new technology. Attempts to establish marketing grades and standards were unsuccessful. The rate of return on adoption of new seeds by farmers is estimated at 25 percent.

960. ----. Situation Analysis of COMBOFLA. USU Series 21/68. La Paz, April 1968. Pp. 25 + Appendix.

M

Argues that "COMBOFLA cannot reach its potential with a limited domestic wool market and an uncertain alpaca-llama world market. The full potentials of the yarn plant must be developed if COMBOFLA is to become economically responsible." Capital investment in yarn production machines and other facilities is necessary.

961. ----; LeBARON, Allen; BAILEY, Lee; and WHITAKER, Morris. Irrigation and Non-Irrigation Alternatives for Reducing Sugar Cane Transportation Costs in Santa Cruz, Bolivia. Logan, Utah: Council of United States Universities for Soil and Water Development in Arid and Sub-Humid Areas, Inc., June 1973. Pp. 73. [FAR 18619; AID Ref. No. BL633.61 W476]

M T

Drought conditions and higher prices for cotton have pushed sugar production in Santa Cruz northward, increasing transportation costs to the point where they may account for as much as 50% of total production costs. This threatens the viability of the sugar industry. "In general, the potential benefits from increasing transport efficiency or changing mill locations do not appear to be great." With flood irrigation and fertilizer in the southern part of the area, transport savings would exceed extra production costs; but competitiveness with cotton depends on cotton prices. Other forms of irrigation involve costs greater than transport savings.

962. ----, and WHITAKER, Morris D. "Investment in Access Roads and Spontaneous Colonization: Additional Evidence from Bolivia." Land Economics 52 (February 1976): 88-95.

M Y/E

Survey data for 1972 show an internal rate of return of 117% for access-road and related investment in the Chané-Piray colonization area north of Santa Cruz. Net returns per hectare were found to decline as distance from the market increased. Colonists tended to behave rationally with respect to market access. Spontaneous colonization based on improved access to markets is clearly more productive than directed colonization, which treats the symptoms and not the causes of resource imbalance. Colonization alone, however, cannot relieve these imbalances, and development programs for the Altiplano and Valleys are also needed.

963. ----, and ----. The Status of Bolivian Agriculture. New York: Praeger Publishers, 1975. [NAL: HD1867 W4b]

Cr M N T Y/E

An important, comprehensive survey and analysis of Bolivian agriculture. The USAID sector survey (1974) draws heavily on it but draws different policy conclusions.

964. WESSEL, Kelso Lee. "An Economic Assessment of Pioneer Settlement in the Bolivian Lowlands." Ph.D. Dissertation, Cornell University, Ithaca, New York, 1968. Pp. 371.

M N T Y/E

"The average peasant could more than double his farm earnings by migrating to the Lowlands. However, many peasants in the Highlands have an opportunity to work off the farm for a few months each year. If this off-farm income is added to the farm earnings the majority of the peasants could realize little economic gains by migrating to the Lowlands.

"One of the two major attractions for a peasant to migrate appears to be the fact that he is assured of a constant supply of food throughout the year. . . . The second attraction is that he has enough land to permit him to increase his level of living significantly if he has the ambition" [Diss.Abstacts, 29/06A/1645].

965. ----. "The Profitability of Small Farms in Bolivia." Cornell International Agricultural Development Mimeograph 37. Ithaca, New York: Department of Agricultural Economics, Cornell University, April 1972. [FAR 17828; ERS/FDCD; SAIG] Cr M T Y/E
- Compares directed and spontaneous colonization projects and colonists generally with Altiplano and Valles farmers. It is argued that the level of living for most colonists differs little from that in the Altiplano and Valles; the colonists, though, have an assured food supply throughout the year. Returns to the factors of production are higher in the Oriente, but supplementary economic opportunities are greater in the Altiplano and Valles. Spontaneous colonization has been more successful than directed colonization. Opportunities for increasing production in the Altiplano and Valles should not be overlooked.
966. ----, and WESSEL, Judith A. "The Mennonites in Bolivia: An Historical and Present Socio-Economic Evaluation." Rev. Mimeographed. Ithaca, New York: Cornell University, 1967. [LTC Files Bo17 W27 m2; MACA/RDD] M T Y/E
967. WHITAKER, Morris D. End-of-Tour Report. Administrative Report No. 004/76. La Paz: Consortium for International Development, August 16, 1976. Pp. 22. [SAIG] M T
- Describes agricultural planning activities in the Ministry of Rural Affairs and Agriculture. Also notes that coca production in the Yungas was no more profitable than that of alternative crops (a result which contradicts some previous research).
968. ----. Supply Response Capability in Bolivian Agriculture. USU Series 50/75. La Paz, June 1975. Pp. 20. [SAIG] T
- For specific crops, there is considerable supply elasticity in response to changing economic conditions, especially for crops for which significant research and extension efforts have been made. In the Altiplano and Valles, however, the aggregate supply elasticity is close to zero in the short run and very low in the long run due to the traditional methods of production used and the overall lack of research and extension services. Elasticities are higher in the Oriente. Recommends more investment in research and extension and improvement of product and factor markets.

969. ----, and FARNSWORTH, W.F. Recomendaciones del programa al MACAG. USU Series 27/75. La Paz, 1975. Pp. 4. T

Recommends adoption of the area development model proposed in USU Series 26/75 (MICHAELSEN). Pilot communities would be established in each department.

970. ----, and WENNERGREN, E. Boyd. Common-Property Rangeland and Induced Neighborhood Effects: Resource Misallocation in Bolivian Agriculture. CID Technical Report 001/76. La Paz: Consortium for International Development, July 15, 1976. [Available in MACA/RDD] T Y/E

Common-property rangeland is held responsible for overgrazing and the associated negative externalities of flooding and erosion. If this process continues, arable land will be destroyed and farm incomes will decline. The authors argue that "the issues related to common-property rangeland use and the associated erosion constitute the highest priority for the agricultural sector."

971. WHITEHEAD, Laurence. "Banzer's Bolivia." Current History 70 (February 1976): 61-64ff. Y/E

In January 1974 the government authorized large price increases for rice, sugar, and other lowland products, while leaving unchanged the prices of products in the Cochabamba Valley. This is a highly commercialized area, where urban influences [including inflation] reach much of the peasantry. Protests were quelled with considerable force.

972. ----. "Basic Data in Poor Countries: The Bolivian Case." Bulletin of the Oxford University Institute of Economics and Statistics 31 (August 1969): 205-227. (Spanish version in Estudios Andinos 1, No. 3 [1970]: 83-109.) T Y/E

Critical comments on the quality of Bolivian data, including agricultural statistics. Bolivia data, it is argued, are worse than those of most other Latin American countries.

973. WIGGINS, Steve. "Informe sobre el sector agropecuario del altiplano norte de Bolivia." Proyecto de Estudio y Promoción del Desarrollo Regional (PRODERBO BOL/73/007). La Paz: United Nations Development Program, February 1976. Pp. 122. [Available in MACA/RDD; MACA: HC181 W5p] Cr M N T Y/E

Review of the literature on the northern altiplano. Environmental conditions are deteriorating. Campesino incomes are very low, despite migration to find seasonal work. Malnutrition is common among children in the poorest families. Small size of plots and fragmented landholdings make it difficult

to use irrigation or mechanize. Cooperatives have not prospered. Credit is difficult to obtain. The typical family markets 20% of its production, through primitive channels. Output can be increased through better pastures, modern inputs in potato production, and the introduction of pyrethrum.

974. WILKIE, James. The Bolivian Revolution and U.S. Aid Since 1952. Los Angeles: Latin American Center, University of California, Los Angeles, 1969. [U.S. Dept. State: HC182 W5]

T Y/E

Argues that U.S. aid, until recently, was designed not so much to promote economic development as to meet social objectives. U.S. programs had a mixed effect on Bolivian agriculture. PL 480 wheat imports hurt the domestic wheat and milling industries, but other activities helped increase rice and sugar production.

975. WISE, R. Martin. Wheat Quality Research Laboratory. USU Series 10/69. La Paz, 1969. Pp. 13.

M

Recommends establishment of a wheat quality research laboratory. Also contains brief remarks on production and marketing problems of flour mills and bakeries.

976. WOOD, James H. A Brief Survey of an Altiplano Community. USU Series 35/75. La Paz, May 1975. Pp. 9. [SAIG]

T

More than half the land is in fallow, and much of it could be cultivated. Present systems of livestock management result in progressive deterioration of the range. Animals are often economic liabilities and not productive assets: about 75% of the sheep are said to be "marginal non-productive animals" whose value is only 25% of the total. Green manure should be used in crop rotations and animal numbers should be reduced.

977. ----. A National Economic Liability: Descanso Lands on the Altiplano. USU Series 40/75. La Paz, 1975. Pp. 3.

T

"The productive output of the Altiplano could be doubled by simply keeping the descansos lands seeded down to soil building crops of grass and legumes The use of moderate amounts of phosphate and nitrogen and large amounts of plant material plowed into the soil is the most economical fertility program for Altiplano farmers" [WOOD]. Leaving approximately 60% of the best lands idle is wasteful.

978. ----. The Performance of Some Introduced Species of Forage on the Altiplano of Bolivia and Their Opportunity Uses. USU Series 29/75. La Paz, 1975. Pp. 25 + Tables. [SAIG]

T

Alfalfa is the most productive species of forage, both under irrigated and non-irrigated conditions. Other forage species are also recommended under various conditions.

979. ----. Potato Seed Plot Technique. USU Series 48/75. La Paz, 1975. T
980. ----. Rotations to Utilize Forages and Green Manure Crops. USU Series 36/75. La Paz, 1975. Pp. 4. T Y/E
 "Campesinos can increase their income by planting green manure crops on descanso land."
981. WRIGHT, A.C.S. et al. Idoneidad de los estudios de suelos en Bolivia. Report of the FAO Mission. Rome: FAO, 1964. Pp. 31. [MACA: S599 B6 W7i] T
 Notes that there are only 4 soil specialists residing in Bolivia. Discusses topography, climate, geology, vegetation, land utilization, and irrigation. Recommends a research program for soils.
982. ZAVALETA, Moisés. "Resultado de ensayos regionales de fertilizantes en el cultivo de papas." La Paz: Ministerio de Agricultura, September 29, 1970. Pp. 4. [MACA: S190 R4 34] T
 Recommends the use of potassium, with little or no nitrogen or phosphorus.
983. ZEBALLOS HURTADO, Hernán. "Bases para un programa de producción agrícola en el Alto Beni." La Paz: Corporación Boliviana de Fomento, 1963. 17 l. [MACA: HD492 Z4] T
 Suggests that the government use existing data on soils, climate, etc. to promote the expansion of bananas, citrus fruits, rice, coffee, cacao, corn, rubber, and vegetables.
984. ----. "Cooperativas agrícolas y pecuarias en el Departamento de Cochabamba." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1959. Pp. 71. [UMSS-FCA] M T
 Many of the 49 agricultural cooperatives established in Cochabamba soon after 1952 were inactive or had been dissolved by the late 1950s. Reasons include: corrupt leadership; control of the cooperatives by the sindicatos, whose leaders tended to be outsiders; and failure to establish investment funds. Some coops, though, organized their production along collective lines, distributing net income to members in accordance with their labor input. Suggestions are made for revitalizing the cooperative movement.
985. ----. "From the Uplands to the Lowlands: An Economic Analysis of Bolivian Rural-Rural Migration." Ph.D. Dissertation, University of Wisconsin, Madison, 1975. [Available in: MACA/RDD; MACA: HD492 Z4f; SAIG] Cr M T Y/E
 "The spontaneous colonists attained an average net farm income

of \$b. 7,200 in 1973, which was 82 percent higher than the average net income in the oriented groups. Statistically this difference was highly significant at a 1 percent probability level." Benefit-cost and internal rate of return analysis clearly favored public investment in spontaneous colonization projects.

986. ----. "Posibilidades de introducción del búfalo al Chapare." Contribución al Seminario sobre Desarrollo Agropecuario del Chapare, Cochabamba, October 20-24, 1969. Pp. 29. [Available in MACA/RDD] T
- Of the 615,000 hectares studied, 220,920 are not suitable for agriculture but could be devoted to the buffalo grazing. Production of buffalo meat can yield satisfactory income.
987. ----; MACÍAS VILLANUEVA, Marcial; and SEJAS ALBORNÓZ, Jaime. Estudio socio-económico y reconocimiento preliminar de suelos: Zona Río Grande-San Javier-Concepción. La Paz: Instituto Nacional de Colonización, December 1967. Pp. 58. [MACA: HT421 Z4e] T Y/E
- Description of soils and brief review of socio-economic conditions. The area, northeast of the city of Santa Cruz, is said to have excellent livestock potential. Comparative input, output, and productivity data are provided for 3 different sizes of farm.
988. ----, and PARRA, Agosto. "A Socio-Economic Study of the Zone of Colonization in the Chapare of Bolivia." Mimeographed. La Paz, 1965. M T Y/E
989. ----, and TERRAZAS U., Edmundo. El cultivo del cacao en la zona de Alto Beni. Boletín de Divulgación Técnica No. 1. La Paz: Instituto Nacional de Colonización, July 1970. Pp. 57. [MACA: SB267 Z4c] M T
- Detailed description of climate, soils, diseases, etc. in the area. The world market outlook is good, but productivity must increase. Cost of production and profitability data are provided.
990. ZEGADA, L.G. Bolivia: Estudio y mejoramiento del cobayo. Project No. AGA-UNDP/SF BOL/21. Rome: FAO, 1970. Pp. 7. [Accession No. 20551-70-WS] T
991. ZELAYA SÁNCHEZ, E.P. "Comercialización de bananas, naranjas y piñas en Bolivia." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1970. Pp. 81. [UMSS-FCA; missing] M

992. ZIERTEN, Federico K. Colonización en Bolivia. Montero, January 1971. Pp. 25. [MACA/RDD] M Y/E
- Study sponsored by the Catholic, Methodist, and Mennonite churches, which were dissatisfied with the results of existing colonization programs. Argues that the government has paid little attention to socio-cultural problems, including the formation of cooperatives. Small farmers have been neglected.
993. ZONDAG, Cornelius H. The Bolivian Economy, 1952-1965: The Revolution and Its Aftermath. New York: Frederick A. Praeger, Publishers, 1966. (Published in Spanish by Editorial Los Amigos del Libro, La Paz y Cochabamba, 1968. Trans. by Mariano Baptista GUMICIO. Pp. 317.) [NAL: HC182.5 Z6 (Spanish)] Cr M T Y/E
- Immediately after the agrarian reform, commercial agriculture in the Altiplano and Valles suffered a serious setback. The confusion over land titles also contributed to production declines. Plots awarded to campesino families were frequently too small to provide subsistence. Agricultural production fell by an estimated 15% (ECLA data), but in 1964 it was 33% higher than in 1952. Many campesinos are eating better and have begun to consume manufactured articles. Some have access to credit, and changes in marketing have benefited them.
994. ----. "Problems in the Economic Development of Bolivia." Mimeo-graphed. La Paz, 1956. Pp. 283. [LTC; MACA: HC181 Z6] Cr M N T Y/E
- Price policy discourages production. Cooperatives and extension services are necessary. Emphasis on mechanized agriculture on the Altiplano and Santa Cruz is misplaced; animal traction is cheaper. Farmers often have to pledge their crops to intermediaries at ruinous prices; transportation improvements, storage, and credit can help remedy this problem. Nutrition data from a survey in Montero appear in the Appendix.
995. ZUNA RICO, E. "Estudio socio-económico de la comunidad rural Ravelo." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1963. Pp. var. [UMSS-FCA; missing] T Y/E
996. ZURITA ROJAS, O. "Posibilidades del cultivo de la soya en el Chapare." Thesis for Degree of Ingeniero Agrónomo, UMSS, Cochabamba, 1970. Pp. 81. [UMSS-FCA; missing] T

APPENDIX

OTHER BIBLIOGRAPHIES ON BOLIVIAN AGRICULTURE

1. ALIAGA de VIZCARRA, Irma. Bibliografía agrícola boliviana. La Paz: Ministerio de Agricultura, 1967. Pp. 141. Suplemento No. 1, 1967-1968 (1969), pp. 44. Suplemento No. 2, 1969-1970 (1972), pp. 62. Suplemento No. 3, 1971-1972 (1975), pp. 50. Suplemento No. 4, 1973-1974 (1976), pp. 40.
2. ----. Bibliografía boliviana de pastos y forrajes. La Paz: Ministerio de Asuntos Campesinos y Agricultura, 1971. Pp. 10.
3. ----, and DELGADILLO, Guido. Bibliografía de pastos y forrajes de los Altos Andes. La Paz: Instituto Interamericano de Ciencias Agrícolas, 1972.
4. ---- et al. Bibliografía agrícola boliviana: Tesis de grado y postgrado de Ingenieros Agrónomos de Bolivia. Vol. I (1945-1969). Cochabamba: Universidad Nacional de San Simón, 1970. Pp. 157.
5. Bolivia. Instituto Nacional de Colonización. Bibliografía boliviana de colonización. La Paz, 1974. Pp. 18.
6. CARDOZO, Armando. Bibliografía agrícola boliviana: Entradas y lista complementaria. Boletín Bibliográfico No. 3. La Paz: Sociedad de Ingenieros Agrónomos de Bolivia, 1963. Pp. 13.
7. ----. Bibliografía de bibliografías agrícolas bolivianas. 2nd ed., expanded. Bogotá, 1974. Pp. 18.
8. ----. Bibliografía de los camélidos. Boletín Experimental No. 32. La Paz: Ministerio de Agricultura, 1968. Pp. 35.
9. ----. Catálogo de la bibliografía agrícola de Bolivia, 1900-1963, de Arturo Costa de la Torre. Boletín Bibliográfico No. 11. La Paz: Sociedad de Ingenieros Agrónomos de Bolivia, 1970. Pp. 14.
10. ----. Clasificación de artículos de la Revista Sayaña, Nos. 1-7. Boletín Bibliográfico No. 10. La Paz: Sociedad de Ingenieros Agrónomos de Bolivia, 1969. Pp. 15.
11. ----. Clasificación general de los artículos publicados en la Revista Campo, II Parte, 1952-1957, Nos. 73 - 129. La Paz: Servicio Agrícola Interamericano, 1961. Pp. 31.

12. ----. Indice de artículos publicados en la Revista Campo, 1947-1952, Nos. 1-68. La Paz: Banco Agrícola de Bolivia, 1953. Pp. 75.
13. ----. Revistas agrícolas bolivianas: Cronología y clasificación. Boletín Bibliográfico No. 2. La Paz: Sociedad de Ingenieros Agrónomos de Bolivia, 1962. Pp. 73.
14. ----; REA CLAVIJO, Julio; and ALIAGA de VIZCARRA, Irma. Bibliografía de la quinua y la cañahua. Boletín Bibliográfico No. 13. La Paz: Sociedad de Ingenieros Agrónomos de Bolivia, 1970. Pp. 29.
15. GANDARILLAS, Humberto, and ALIAGA de VIZCARRA, Irma. Bibliografía boliviana de estudios con fertilizantes. La Paz: Instituto Nacional del Trigo, April 1972. Pp. 8.
16. ----, and ----. Bibliografía boliviana del trigo. La Paz: Instituto Nacional del Trigo, October 1972. Pp. 24.
17. Land Tenure Center. Agrarian Reform in Latin America: An Annotated Bibliography. Land Economics Monographs No. 5. Madison: University of Wisconsin--Madison, 1974.
18. LeBaron, Allen et al. Bibliography of Latin American Agricultural Production and Development. 2 vols. Logan, Utah: Council of United States Universities for Soil and Water Development in Arid and Sub-Humid Areas, Inc., May 1973.
19. MUÑOZ REYES, Jorge. Bibliografía geográfica de Bolivia. Publicación No. 16. La Paz: Academia Nacional de Ciencias de Bolivia, 1967.
20. Organization of American States. Indice anotado de los trabajos aerofotográficos y los mapas topográficos y de recursos naturales realizados en los países de América Latina, miembros de la OEA: Bolivia. Washington, D.C., 1964.
21. REA, Julio, and VILLARROEL, Mario. Bibliografía boliviana sobre extensión agrícola. La Paz: Ministerio de Asuntos Campesinos y Agricultura, 1971. Pp. 21.
22. SQUIRE, F.A. "Entomological Problems in Bolivia." PANS 18 (September 1972): 249-268.
23. TORRICO ARZE, Armando, and ALIAGA de VIZCARRA, Irma. Bibliografía boliviana de economía agrícola. Boletín Bibliográfico No. 6. La Paz: Sociedad de Ingenieros Agrónomos de Bolivia, 1967. Pp. 27.
24. United Nations. Bolivia. Lista parcial de informes presentados al Gobierno de Bolivia por expertos de Naciones Unidas y sus agencias especializadas. La Paz, 1976. Pp. 64.
25. Xerox University Microfilms. Latin America: A Catalog of Dissertations. Ann Arbor, Mich., 1974.

26. ZAVALETA RAMOS, Moisés, and ALIAGA de VIZCARRA, Irma. Bibliografía sobre papa (solanum tuberosum). Boletín Bibliográfico No. 5. La Paz: Sociedad de Ingenieros Agrónomos de Bolivia, 1967. Pp. 11.