

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523
BIBLIOGRAPHIC INPUT SHEET

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Batch 37

| | | |
|---------------------------|--|------------------|
| 1. SUBJECT CLASSIFICATION | A. PRIMARY Serials | Y-AQ10-0000-0000 |
| | B. SECONDARY Agriculture--Food processing | |

2. TITLE AND SUBTITLE
Effects of extrusion processing on the nutritional quality of inexpensive high protein food mixtures; progress report, July, 1967-April, 1968

3. AUTHOR(S)
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| | | |
|--------------------------|--------------------------|----------------------|
| 4. DOCUMENT DATE 1968 | 5. NUMBER OF PAGES 2p | 6. ARC NUMBER ARC |
|--------------------------|--------------------------|----------------------|

7. REFERENCE ORGANIZATION NAME AND ADDRESS
Calif.--Davis

8. SUPPLEMENTARY NOTES (Sponsoring Organization, Publishers, Availability)
(Research summary)

9. ABSTRACT

| | |
|--|--------------------------------------|
| 10. CONTROL NUMBER PN-AAC-297 | 11. PRICE OF DOCUMENT |
| 12. DESCRIPTORS Extrusions Food mixes Supplements | 13. PROJECT NUMBER |
| | 14. CONTRACT NUMBER CSD-1587 Res. |
| | 15. TYPE OF DOCUMENT |

PROGRESS REPORT

AID/csd - 1587

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PA-1587
PA-110-297

Contract AID/csd - 1587 was initiated essentially on July 1, 1967. Since the work concerned the nutritional evaluation of products which may be utilized in feeding populations primarily of pre-school children and infants with high protein sources manufactured by extrusion processing, the first item in the project was the purchase and transfer to Chile of the required equipment. Negotiations were undertaken in July with the Wenger Company to supply an extruder (X25) to the project. Negotiations were concluded in the end of July, and an order placed immediately. An Anderson extruder was originally requested in the grant application, since there were no Wengers units of pilot plant size. The X25 was developed subsequent to the application for contractual funds. Since the X25 is a more versatile unit, it was decided to attempt its purchase, despite the higher cost. The negotiations with Wenger Company resulted in the purchase of an X25, essentially fully equipped, for a price only slightly higher than the Anderson. The unit had a delivery date to Houston of approximately 90 days. Due to the usual difficulties of transferring machinery to a foreign country, the X25 was delivered to Chile in the early part of December. Difficulties with customs, transportation, and installation suggest that the unit will not be installed in the pilot plant of the Department of Food Science and Technology at the University of Chile until the latter part of April.

Experiments in the Department of Food Science and Technology at the University of California at Davis with respect to changes in nutritional value encountered in the processing of vegetable protein were initiated. Two research assistants were utilized in this work. 1) Isidro Planella (B.S.): supported by the University of California - University of Chile agreement, obtaining a Master's degree and former director of the Institute of Food Science in Chile. He will file a thesis on the nutritional effect of processing on vegetable proteins. 2) David Owen (B.S., M.S.): supported under present contract. Mr. Owen is progressing toward the Ph.D. degree in Nutrition, and will complete his research on "The Nutritional Aspects of Extrusion Processing of Vegetable and Fish Protein" in Chile.

Mr. Owen and Mr. Planella have initiated a set of experiments contrasting two methods of processing vegetable protein and two methods of measuring the biological value of the proteins. Corn supplemented with lysine and tryptophane was heated to glutenize the carbohydrates, and then finished by either canning or air drying. In contrast to this, corn was supplemented with soy protein and processed in the same manner. The nutritional effectiveness of adjustment by either amino acid or other vegetable supplementation was compared, as well as the two methods of processing. Amino acid analyses, biological protein evaluation with rats, and microbiological assays are in the process of being completed in these experiments.

It is anticipated that rapid acceleration of this project will take place with the installation of the extrusion processing unit in Chile.