

JULY 25, 1972

PROGRESS AND EVALUATION REPORT
Accelerated Livestock Production Project - FY 1972
Project No. 664-11-130-276

3/p

I. Introduction

This is a progress and evaluation report of project accomplishments and activities beginning December 1, 1971. A similar report covering accomplishments for the project's first five months in FY 1972 was submitted last December. Details of specific activities are contained in monthly reports from team members on file in the project. The attached plan of operations outlines the project's strategy to begin operations (Attachment #1). It will be kept current to reflect needed changes in planning.

Following is a review of activities set forth in the plan of work.

II. Personnel Administration and Organization

Progress has been made towards the development of an organization for a coordinated approach to livestock production in Tunisia. The GOT has assigned M. Ben Kheder, Director of Agricultural Production, to serve as Technical Coordinator and M. Habib Najjar as Technical Director of the Accelerated Livestock Production Project.

U.S. advisers assigned to date are:

Orvil Godman, PASA/USDA, Project Officer (to be replaced by Donald Shallow, Direct Hire, at end of tour - 28 July 1972);

Paul Corak, Farm Irrigation Advisor, PASA/USDA (Irrigated Forage Production) (to be replaced by Glen Buchta at end of tour - 10 August 1972);

Meril G. Carter, Range Management Advisor, PASA/USDA;

Eugene R. Webb, Feed Grain and Forage Advisor, USAID/D.H.;

John Comeaux, Animal Husbandry Advisor, PASA/USDA (will report for duty 25 August 1972).

GOT counterpart Ingenieur technicians assigned to the project in addition to the Technical Director, Mr. Najjar, are:

✓ Jabeur, Ammar	Feed Grain and Forage Specialist
✓ Hacuali, Hedi	Farm Irrigation Specialist
Hochlaf, Habib	Range and Forage Specialist
Caaya, Abdallah	Animal Husbandry and Forage Production Specialist
Slama, Harouda	Animal Husbandry and Forage Production Specialist

Arrangements are underway to transfer Guelliez, Mostapha (Ing) to the Project effective in July as an Animal Husbandry and Forage Production Specialist.

Other GOT assignments of technicians are:

M. Angel Sanz (Spanish Ingenieur) - Feed and Forage Specialist
Four Agents Techniques

Outside help and technical guidance in Animal Husbandry has been received from M. Max Calay (Belgian Advisor to OEP) and M. Albert Roustan (French Advisor to Agricultural Production) and from F.A.O. Project TUN #17.

Work has begun on farms in the Government Sector and on selected private farms in the four northern governorats. The Commissioners of Agriculture in Tunis, Bizerte, Beja and Jendouba have assigned representatives to work with Project personnel to get activities started and to help select the farms for the project to work on.

The following Government Services have appointed representatives to coordinate project efforts with related activities of their organizations:

O.E.P.	M. Hadi Barzia	Livestock Production
OMVM	Dr. El Reji	Livestock Production
O.T.D.	M. Micheland	Livestock and Forage Production
Forest Service	M. Ben Aissa	Range Management
C.E.S.	H. Hizem	Nursery for grass seed production at El Garine and basic soil and water developmental programs.
Accelerated Wheat Production Project	M. Bakhti	Crop Rotation and Forage Production
Extension Service	M.H. Guerban	Related Extension Activities
	M. Gaieb	Related Extension Activities
FAO Project	Peter van der Veen	Livestock and Forage Production
World Food Program (UNDP)	M. Ramirez	Feed Grains

There is now a critical need in the project for Tunisian personnel in the following categories:

- 4 Ingenieurs - One to be located in each of the following governorats: Beja, Bizerte, Jendouba and Tunis. This will help us to expand operations in 1973 to Le Kef, Kairouan and Sousse as proposed in the work plan.
- 1 Ingenieur - An Animal husbandry specialist to serve as a counterpart for M. Comeaux, the new USAID advisor.
- 8 Adjoints Techniques or Agents Techniques - To carry out and follow up on Field Operations.
- 1 Farm Machinery Mechanic - A highly trained mechanic to provide leadership in maintaining project equipment and training other Tunisian mechanics.
- 1 or 2 Tractor Drivers - Capable and experienced tractor drivers needed to operate project tractors and farm machinery.

The attached organization outlines the infrastructure and organizational apparatus through the project's four disciplines: (1) Animal Husbandry, (2) Feed Grain Production and Utilization, (3) Range and Pasture Management, (4) Irrigated Forage Production (Attachment #2).

Lack of transportation for project technicians was critical until March because only one car was available. Two Scouts, one pick-up and one chevrolet sedan borrowed from the OWP (CES) started and kept project operations going.

Ten vehicles have been included in the 1972 CY GOT Budget to meet project transportation needs.

Arrangements have been completed with the Peace Corps to obtain four or more technicians with B.S. degrees in Animal Husbandry, Range Management, Agronomy, mechanical or civil engineering to work with Project Technicians in a training program for GOT technicians and farmers.

Commodities consisting primarily of grass seed and farm machinery (\$40,000) were imported from the USA during the first year of the project.

An order for \$50,000 more worth of additional grass seed and commodities is included in the 1972 Fiscal Year ProAg.

In addition 20,150 dinars from the 1971 CY-Trust Fund were used to buy project equipment for demonstration purposes and vehicles for transportation.

A detailed account of all equipment purchased to date and projected needs for 1972 and 1973 is on file in the project office.

III. Operation Management (See section II of the attached Plan of Work)

A. Field Operations

1. Range Management and Feed and Forage Section

Activities during the first half of CY 1972 began with the project team effort to plan the kind and extent of forage and concentrate plantings based on the needs of cooperating farmers in the Governorates of Jendouba, Bizerte, Beja and Tunis. The planning phase was followed by stockpiling of the necessary seeds and fertilizer at strategic locations and development of technical guides for subsequent seedings.

The seeding phase of operations got underway in March and continued until early June with on-site assistance to farmers in actual techniques of land preparation, fertilization and seeding.

Concurrently, technical assistance was provided to farmers in weeding, irrigating and harvesting the seeded crops plus use for animal feeding and storage.

Observations to date indicate that most alfalfa plantings were successful. Plantings of sudangrass (piper) were generally marginal largely due to poor quality seed and abnormally cool weather although a number of irrigated

plantings are growing well at this time. The success of dryland sudan grass plantings is in the doubtful range due to rapid drying of soils with the advent of the dry season. Dryland alfalfa plantings appear to have a reasonable chance for survival. Corn plantings are not impressive at this time.

During the period, training was provided to three Tunisian project professional personnel and seven sub-professional GOT personnel. Their participation in all phases from site selection to seedbed preparation, seeding and harvesting generated a striking increase in morale and confidence in their future capabilities.

In addition to the seeding campaigns, land use and conservation plans were developed on the Borj El Amri government livestock farm and the Amila Cooperative farm comprising 1800 hectares. Approximately 150 hectares of forage plantings and 50 hectares of range seedings will result from this work next September. Such plantings will aid significantly in reducing erosion problems and assist in providing sufficient forage and grazing to support increased livestock production for distribution to farmers.

O.E.P.

900 kilos of seed corn and 600 kilos of grain sorghum seed were furnished to Borj El Amri, Eritissa and Sedjenane farms to plant for feed and forage production. Seed was obtained from the OMWP nursery operated jointly with the C.E.S. Trials of corn and grain sorghum for feed grain were established on a cooperative basis with the OEF farm at Sedjenane.

Evaluation of Results (See Summary, Page 5)

1. Project goals for spring plantings of 40 pilot farms in 4 governorats have been exceeded in number as well as planned hectarage.
2. Quality of plantings are average to good for alfalfa, and mostly marginal to average for sudangrass and corn with certain exceptions.
3. Interest of farmers in increasing livestock feed supplies remains high but capability of performance does not match the interest. Among the reasons for this are: lack of suitable plowing and weeding equipment, some reluctance to devote the better land to forage since the culture and value of such plantings is largely unknown, delay in land preparation, lack of available irrigation water supplies, and lack of suitable irrigation systems.
4. Although the plantings made to date are significant as training and demonstration efforts, significant effects on increased livestock and forage production will depend on wide-scale extension.

Overcoming Current Problems

1. To assure better quality and quantity of plantings it is essential that technical on-site assistance be provided cooperating farmers at the time of seedbed preparation and seeding. The forage technicians of the project have about reached their limit for on-site assistance due to number of farms and travel distances involved. Therefore, for expansion of the project and significant impact on livestock production it is now necessary to station

Summary of Forage and Concentrate Plantings
and Technical Assistance - to Private and Cooperative Sectors

GOVERNORAT :	ALFALFA :	SULLA :	BERSIM :	FESCUE :	BARLEY :	SUDANGRA :	CORN :	TOTAL :	Number of Farms :	Number of Farms :	Number of Farms :
	Ha	Ha	Ha	Ha	Ha	Ha	Ha	Ha	of	of	of
									Farms	Farms	Farms
									Assistance	Assistance	Assistance
TUNIS :	20	2	13	6	4	11	5	61	16	10	10
JENDOUBA :	21	3	3			3		30	10	3	3
SIZERSE :	16	2	2	2		10	2	34	6	4	4
BEJA :	29	3				7	2	41	16	7	7
TOTAL :	86	10	18	8	4	31	9	166	48	24	24
	(70 irrigated)					(30 irrig.)	(all irrigated)				
	(12 dryland)					(1 dryland)					

July 20, 1972

All fescue and part of the lucerne seed were produced on the El Grine Plant Materials Center (CM-9). All others purchased locally, with USA, or donated by cooperating agricultural agencies. Of the total acreage, approximately 75% of planted hectares were made on private farms and 25% on cooperative farms. Farms assisted comprise 15% cooperatively owned and 85% privately owned.

professional and sub-professional technicians in the various governorats. Such technicians will need close supervision for the first year or two to assure quality work.

2. The project now has a limited amount of seeding, chemical weed control and harvesting equipment on hand. Such equipment will be used mostly for demonstrations due to transportation, scheduling, and maintenance limitations. In this respect it is considered feasible to encourage cooperating farmers to purchase their own equipment. On the smaller farms mainly dealing with 1 to 3 hectares of forage and concentrate crops, small hand or tractor powered seeders are more practical. Hand harvesting is still practicable on such farms. Larger farms can usually purchase needed power equipment thru normal credit channels.

3. Until such time as land leveling equipment and know-how become more widely available, farmers will generally have to rely on their traditional irrigation methods by small basins. Project efforts on efficient irrigation systems other than sprinkler types should be confined to a few farmers where equipment needs can be met by the project from start to finish, mainly for demonstration and training objectives, until such times as government assistance or private programs in this field can be expanded.

4. Maximum expansion of summer irrigated forage crops (corn, sorghum, sudan grass, alfalfa) should be encouraged on livestock farms with the reasoning that in summer both green forage supplies are needed and plus favorable weather conditions permit harvesting forages for silage and hay for reserves. In winter most farms have adequate green forages available in the form of small grain and some legumes.

Advantages in soil fertility maintenance can be achieved by using more legumes on fallow land such as bersim and sulla and possibly annual Medicagos in the northern governorats. Bersim and sulla as winter crops and irrigated corn and sudan grass for silage are being emphasized.

5. As a general observation in the northern governorats, much work needs to be done to have farmers return all grain crop residues to the soil for organic material maintenance rather than the widespread practice of baling all straw thus requiring fallow rotations to achieve soil fertility maintenance. By return of all residues plus proper additions of fertilizer much fallow rotations could be avoided thus releasing much land for production of winter forage crops. At present, most grain crop residues are baled and subsequently used for stock feed and bedding. At best, such feed is of low quality but accounts for a large component of cattle feed in northern Tunisia. As a consequence there is a low level of nutrition in most herds.

The retention of all grain crop residues plus fertilizer additions for soil fertility maintenance appears feasible. However, increased research on this technique is needed.

6. There is a need to develop complete farm plans based on land capability and treatment needs to provide a sound economic basis for livestock and forage production and to provide means to control soil erosion.

2. Irrigated Forage Section

The following work was accomplished this period by the Irrigation Advisor and Tunisian counterparts. Some time was devoted to training periods for the USAID sponsored participants who received Master's and Bachelor's degrees in the U.S. as Agricultural Engineers majoring in soil and water conservation. A period of about three weeks was spent in special assignments to include the final inspection of the Chenchou Project - an irrigation project of 200 hectares developed under a construction contract administered by the USAID and ORP for the Tunisian Government. A proposed program was reviewed to train a cadre of Tunisian engineers to assist farmers in the Jendouba region with their irrigation problems and to develop small private farms for demonstration purposes.

December, January and February were spent in the four northern governorates of Jendouba, Beja, Bizerte and Tanta assuring that the cooperating farmers and cooperatives (government-owned and operated farms) were adhering to an agreed program of irrigating, fertilizing, care and harvest of forage crops. This time was also spent making topographic surveys of areas proposed for irrigated forage production to be seeded the following spring.

The topography taken is reduced to elevations and a simple map is drawn showing the contours, actual and direction of proposed irrigation, placement of ditches, dimensions of each irrigated variety, and other physical and political landmarks to familiarize the farmer with the map. These were reproduced in three copies, giving one to the farmer and the other to the agronomic specialist assigned to that governorate to plan rows and furrow directions and then assist the farmer in preparing his layout for the irrigated parcel. With only few exceptions, irrigation on these farms was accomplished by a small basin method (petite planche) using water pumped from hand dug wells (puits). The only exception from this method of irrigation was in four sprinkler systems, one border system, and varying systems of parallel ditches that were operated similarly to petite planche but without intensive land leveling within the planche or basin.

The system of "petite planche" is theoretically an efficient one when well leveled. Water is turned into this normally 5 by 5-meter basin for a time necessary to add 2-3 inches of water over-all; then the opening is closed and water diverted into the next basin. This system is used extensively in the culture of vegetables and citrus fruits, but is not compatible in forage production where seeding, cultivation and harvest are contemplated by other than hand methods.

The size of the basin is determined by the slope or irregularity of the land, by the volume of water available and by individual preference, but it is very time consuming and costly to hand level and build water retaining ridges preceding each crop.

Contourlines are adapted to small and varying volumes of water, and were encouraged whenever the topography proved them feasible, and for the farmers who wanted to try another system that would eliminate the time and expense of constructing small basins.

March, April and May proved to be unusually humid with rainstorms occurring nearly weekly. This was excellent for legumes seeded in March and April, and little or no irrigation was required to keep them flourishing. But for the parcels of land that required extensive surface preparation by machinery such as shaping by land planes, other tillage preparation and corrugation, it meant time consuming delays.

Almost all land under long-time cultivation of the selected farms requires light to intensive land shaping prior to efficient irrigation. The special machinery, land planes, corrugation equipment, grass and legume seed drills and truck and trailer had not arrived in time for spring seed bed preparation. It was therefore necessary to borrow such equipment from the Accelerated Cereals Production Project when it was available. Our project has its own equipment on order. Three Eversman land planes were transported to three governorates to be used in land preparation. Such land planes are operated with 5-point hitches which presented a problem of "hooking" to available tractors. The situation combined with excessively wet weather added to the problem of timely transportation of land planes.

With the arrival of May 15, the rains stopped and it was necessary to irrigate to keep the small plants flourishing. Short lengths of plastic tubing were provided to the farmers using corrugations to control the volume of water. Project technicians put on their irrigation boots and provided direct technical assistance to farmers using the new system. A common problem was lack of control of streams in the corrugation system which resulted in erosion. A second was the undulation of the land. The soil had been packed by spring rains and passage of the land planes was less effective in smoothing operations.

Towards the end of June many farmers were behind in their irrigation schedules. The wells are normally equipped with centrifugal pumps capable of lifting water 21 feet at sea level. When the water in the well is drawn down near this point, it is necessary to stop and let the well recharge. Frequently this recharge period will be 5 hours, permitting only 10 hours' use of the well out of a 24-hour day. Irrigation application by surface and sprinkler systems requires that the water run continuously from 6 to 12 hours. To use an efficient corrugation system, length of rows are tailored to fit the soil, its water intake rate and slope and the crop being grown. To shorten this length of "run" to accommodate a water supply seriously hampers its effectiveness and efficiency. These are some of the problems the project is working on to eliminate and to establish effective farm irrigation for forage production.

Sprinkler irrigation systems were designed for three farms, and numerous checks made of the effectiveness of existing sprinkler system. A pressure gauge will be used to determine functional problems.

Water quality will continue to be a limiting factor in certain areas. Irrigation and drainage assistance given to one farmer revealed water from three wells tested at 5.88 grams of salt per liter, too toxic to use on all but a few crops. On another farm with a potential 35-facture development, the

- 9 -

Oued Meliane is a source of water. Both the quality and quantity (a dam has recently been built upstream with no schedule for summer releases) of water are too uncertain to recommend a venture of this size.

3. Animal Husbandry Section

Improved animal husbandry practices and management techniques have been stressed on each of the selected farms in the four governorates. Feed and forage needs and production potential were calculated in forage units and established on 28 farms with fattening programs for a total of approximately 500 cattle. A plan for increased livestock and forage production was developed for each of these farms, which includes a regular weighing program and technical guidance in a feeds and feeding program.

Mr. Max Cabay, Belgian Advisor from the OEP, gave substantial assistance to our project in getting this feed and feeding program started. Mr. Albert Roussan, French Advisor in Animal Husbandry to the Animal Production Division, also assisted. Technical guidelines established by the EAO Livestock and Forage Project TUNIS No. 17, were used and are being adapted for the project's technical guide.

Pending procurement of our own equipment the EAO Project TUNIS No. 17 loaned us a scale to weigh cattle. A pickup unit (5/8 ton) was borrowed from the ONMP (OEP) to transport the weighing equipment. Basic equipment needs for the animal husbandry section have been developed, ordered and budgeted from GOT and USAID funding sources.

Three forage harvesters with wagons and two portable grinder mixers were received from the USA and put to use. One forage harvester and wagon and one grinder mixer are in use at OEP Farm at Bordj El Amri where they are fattening 300 young bulls in 1973. One forage harvester and wagon were used in the Beja governorate and one grinder mixer is in use at the UCP Anila farm in the Bizerte governorate.

The attached chart indicates the extent and progress of our Animal Husbandry work to date (Attachment No. 3).

B. Grass Seed Production For Forage Crops

Technical assistance was given to the ONMP's Grass Seed Nursery at El Guine and to irrigation scheduling. Mr. M'Kiddi, Project Manager, has included an electric motor and pump on the CMS 72 CF budget to replace the old Diesel equipment. El Guine irrigation got considerably behind schedule in fall and early winter applications in the older stands of grasses and legumes. However, exceptionally good rains in March and April helped to alleviate this.

Parcels No. 10, Sulla, No. 3, Bessim; and No. 5, Agropyrum, will be plowed up in July and sowed to grasses and legumes best fitting the present need and desires in Tunisia. Alternative plans are to reseed to Sulla, Bessim and if possible with Blue Panic and Lolium (perennial).

Grass seed harvest began in May and is proceeding in a satisfactory manner. Only the alfalfa remains to be harvested. Detailed results of the 1972 harvest and seeds in storage are shown on the attached inventory. (Attachment No. 4). A bad hailstorm in early May reduced the yields by 10 to 20%. Borsin had the heaviest rate of yield resulting in about 5 metric tons from approximately 6 hectares.

Project technicians have provided regular on-site technical guidance during the critical period of the grass seed harvest.

A new 7-foot combine has been ordered from the USA to harvest grass seed in Northern Tunisia and to supplement harvest operations at El Grins.

Many potential grass seed crops that grow in scattered areas in Northern Tunisia can be located and harvested.

To date only one tractor driver, Mohamed Sakha, has attained a high level of proficiency in operating all nursery equipment and machinery. A major need now is to obtain and train a back-up driver in the critical skills of operating special nursery equipment.

A schematic diagram of the El Grine perimeter is attached (Attachment No. 5) showing the fields, culture and dates of seeding the existing crop.

The development of irrigation water for the south 34.3 hectares (shown on the attached diagram as Fields 1 and 2) did not materialize. It would have required an additional well 600 meters away to have been drilled. This was not feasible. Further investigation will be made in an effort to locate a water supply for future development.

C. Short and Long-Term Planning

Project technicians participated with the Animal Production Division in assembling information for livestock and forage production planning purposes as a part of the Ministry of Agriculture's Four-Year Plan. An inventory of current livestock and forage production in Tunisia was made and future potential and needs were estimated and submitted to the Ministry by P.A. This was the first step in developing Tunisia's basic livestock and forage production planning. A long-term plan is scheduled to be completed by March 1975.

D. Range and Pasture Management Deferred Grazing Program

The feasibility was studied of re-establishing the Deferred Grazing Program in the old OWP near Maklar. Project technicians met in February and May with Dr. Hamed Benhabib, Minister of Agriculture, Ben Messaoud, Secretary of State to the Minister of Agriculture, the Governor of Le Kef, the Commissar of Agriculture of Le Kef, the Delegate at Maklar, Forest Service technicians, FAO technicians and World Food Program representatives. The status of the 5,000-hectare deferred grazing program and the possibility of utilizing the sheep husbandry facilities at the bergerie were considered.

If the project supports this Deferred Grazing Program, the following points will need to be established:

1. It will have to be set up as a protection grazing program, as 4,000 hectares are either forested or land subject to severe erosion. Only about 1,000 hectares are range land with the capability for improved conditions and yield potential through deferred grazing.
2. Land tenure and absolute grazing control of the area to be protected or deferred must be obtained.
3. Arrangements for feed and forage must be agreed upon.
4. To begin with, the project's support should be limited to technical advice until further support becomes feasible.

IV. Technical Guidance

Technical standards used for the project's Livestock and Forage program have been developed by FAO Project TUN No. 17 and INPAT. Range and Pasture Management guidance and conservation cropping systems were developed by the ONPF. Project technicians have begun assembly of information that will be used to adapt these standards to project needs and establish an over-all Technical Guide for livestock and forage production in Tunisia.

V. Extension Activities

One of the project's main efforts to date as outlined in the operations section of this report has been the Extension activity.

In the process of providing technical assistance to both GOT and private farmers, project technicians receive training in how to teach farmers to improve livestock and forage production.

Contacts have been maintained with the Extension Service and a coordinated approach will be developed for all livestock extension technicians to follow.

VI. Coordination with Other Organizations

Contacts have been made and initial efforts begun to coordinate livestock and forage production with other organizations. Representatives have been appointed by each GOT agency as outlined in Section III and initial coordination strategy formulated.

A more coordinated effort of all organizations in the livestock sector is needed. Mr. Ben Maccoud, Secretary of State in the Ministry of Agriculture, has appointed a commission to study all phases of the Livestock Production efforts in Tunisia and to make recommendations for future direction.

Our Project Manager is an active member of this commission. The project's coordinating efforts and activities will be established after this committee's recommendations have been acted upon. The project has coordinated its work with all other countries that are giving assistance in Tunisia as follows:

1. FAO - Tunis Project No. 17 (INRAT) - Regular contact has been maintained and full use made of the technical guidelines established at El Afareg for Livestock and Forage Production.
2. Germany - Livestock Production and Extension Programs with OTD at Jendouba and OEP at Sedjenane - Regular contact has been established and maintained. Project objectives and guidelines have been coordinated with Dr. Bartha, the German Team Leader. Project technicians have coordinated all field activities in the Jendouba governorat.
3. Germany - Extension and Training Programs in Livestock and Forage Production at Sedjenane (OEP) - Furnished corn and sorghum seed and established several one-hectare trials; (dry land plantings for grain and forage).
4. Belgium - Livestock Improvement Breeding and Management at Fritissa (OEP) - Initial contact made and follow-up will be accomplished.
5. Belgium - Feeds and Feeding for Baby Beef Fattening (OMVVM) - Initial contacts made and future follow-up will be accomplished. Made use of their various recommendations on our selected farms.
6. Belgium - Artificial Insemination Program with OEP - Project technicians have participated in educational meetings held to provide a better understanding and to help expand the artificial insemination program in Tunisia. The project will continue to encourage and support this program.
7. Austria - Livestock Production including Improved Breeding and Extension and Training Programs at Zama, OEP - Initial contacts made and follow-up will be accomplished.
8. Holland - Livestock Breeding (Dairy) and Irrigation Training and Extension Program (OMVVM) - Cooperative field trials in irrigated alfalfa, sudan grass and sorghum have been established at Tebouba. Project's irrigation engineer advisor has furnished substantial technical assistance to help improve their farm irrigation and to increase forage production.

9. Holland - Training Technicians in Irrigation Techniques - DERFC - Arrangements have been made with Director R. Knibbe for project technicians to participate in training sessions of one week or more in 1972-73.
10. Denmark - Livestock Improved Breeding and Management Project at Utica and Lerdine (OMVVM) - Established contact and have cooperated in establishing 7 hectares of irrigated forage trials at Lerdine where 300 herd of Holsteins are maintained for a dual purpose type production using the bull calves for beef production.
11. Spain - Livestock Extension Work - Initial contact was made and necessary follow-up will be accomplished. A Spanish engineer, Mr. Sanz, has been assigned to work with our project.
12. England - Beef Production by Fattening 4,000 Young Bulls. OEP plus OED, OMVVM and some private farms are cooperating - Initial contact was made and necessary follow-up will be maintained.
13. USAID - Irrigation Development for Alfalfa Production - OEP - Chenchaou project technicians have furnished technical assistance as requested for the development of this perimeter by Parsons Company.
14. USAID - Poultry Husbandry Project - OEP - Maintained contact and provided technical support as needed to keep this project viable. Three participant trainees were sent to the U.S. for short-time training and one was sent to Minnesota University to obtain a degree in Poultry Husbandry. 450 Tunisian farmers attended three seminars as follows:

Nabeul - December 1, 1971

Le Kef - December 4, 1971

Gafsa - December 9, 1971

Representatives from all parts of Tunisia were able to attend one or more of these seminars.

BEST AVAILABLE COPY

Proposed projects that have been brought to our attention for future co-ordinating action are:

1. Canada - Livestock Breeding (OMVVM) - Poultry Development (OEP) - Watershed management (CES).
2. Sweden - Possible continuation of some of the work in Livestock and Forage Production established at El Afareg farm near Beja by FAO TUN #17.
3. USAID - Farm irrigation development (OMVVM) at Ghardimaou.

The Project Management will continue to maintain contact with key individuals of each country and help develop a system to coordinate and integrate all assistance to the Tunisian livestock industry.

VII. Research

Contact has been maintained with the Accelerated Cereals Production Project and their activities in Research for small grain better adapted to Tunisia. The Feed Grain Advisor and his counterpart assisted Moncef Harrabi of ACPP to harvest nineteen selected lines of barley. The seed will be used for further testing next year. The goal is to develop stiff-strawed high yielding disease-resistant barley.

99 Barley lines were planted and grown in 1971 in the nursery at INRAT Station. Observations were made for disease, yield and adaptation to Tunisia. 19 lines were harvested and kept for further testing next year. Observations at this time indicate that the Egyptian lines such as Giza, 117, 119 and 120 show immediate promise for the future.

In addition, multiplication trials were grown by the ACPP at St. Cyprien. Two English varieties, Bille and Amy, indicate good potential for feed grain barley.

Seed was furnished for dryland plantings consisting of 1 hectare of corn and one hectare of sorghum for grain and established at Sedjenane in cooperation with the OEP and the German Advisor, Mr. Gunter John.

Irrigated trials in corn, sorghum and sudangrass for silage were established at the El Grine nursery. Results to date and past USAID sponsored trials indicate that these crops should be promoted and utilized more in Tunisia.

VIII. Training of Returned Participants (USAID sponsored)

Since February, Mr. Hedi Naouali has been assigned to the project as counterpart to the American Advisor and has been assisting in all phases of the irrigation program. Training has been given to Hedi El Adjili, now assigned to the Forest Service, C.E.S. As counterparts to the Canadian team on the Qued Zeroud Watershed Management Project Ahmad Chikhaoui, CES, Tunis;

BEST AVAILABLE COPY

105-

Khaled Zeguidi, CEP, OMWP; Mohamed Habib Ben Aissa, Forest Service, Tunis; and Habib Adili, Accelerated Cereals, all returned participants and graduate agricultural engineers have received training also. This training has been in the area of site construction and irrigation design, including topographic work, site selection, hydrologic investigations and calculation, structure design and irrigation sprinkler system design.

Mr. Zeguidi has assumed responsibility for all structural works under the Oued Merguellil Watershed Program.

Mr. Adili has the main responsibility under the Oued Zeroud Program jointly sponsored by the Tunisian and Canadian Governments.

Mr. Chihacoui will be responsible for structural work in the CES for all of Tunisia.

Mr. Ben Aissa is responsible for construction equipment for the Forest Service.

Training by American Advisors was also provided as follows:

Mr. Mousses Harrabi currently assigned to small grain research in INRAT and to the Accelerated Cereals Production Program received technical training in agronomy. He is cooperating with the Livestock Project in the development of varieties of sorghum and barley best adapted to Tunisia.

Messrs. Habib Hochlat and Jawar Jahour are assigned to our project as counterparts for the American advisors and so receive daily on-site training.

Messrs. Ahmed Bouraid and Hannou who are assigned to the OMWP have received periodic training in the agronomic phase of forage production, grass seed production, irrigation and in a general soil and water conservation program.

Mr. Ghassi Tijani is working for IHC and maintains regular contact with American advisors.

Messrs. E. Tarrifi and Abdelaziz are assigned to the Accelerated Cereals Production Project and contact American Advisors when necessary.

Mr. Jeddi Abdelaziz is a private farmer and is now installing an irrigation system on his farm with technical guidance from the project's American irrigation advisor.

Mr. M. Zgoul is teaching school at Moghrane and makes periodic contact with the project's American advisors.

Future Training

Three students have been selected and will be sent to the U.S. to study for M.S. degrees in Range Management Agronomy and Animal Husbandry. Two are scheduled to leave September 1972 and one in March 1973, if the issue of degree recognition is resolved.

Five key Tunisian officials and technicians have been sent to the U.S. to observe and study the livestock and forage industry there. All have returned and are working in livestock and forage production in Tunisia.

Project Manager Habib Najjar and Dr. El Beji just returned from a 4-week observational visit of livestock and forage production activities in the U.S. All report successful visits and feel that they have become more knowledgeable in aspects of livestock management.

IX. Conclusions and Observations

1. About 15% of the agricultural land in the northern third of Tunisia remains under operating control by the GOT or is administered as cooperatives. Plans are to eventually turn some of this land over to private farmers. However, many of these farms are presently being operated by capable agricultural technicians and have potential for immediate development of forage and beef production.

Governmental agencies such as the OED, OMVVM and OEP who administer these lands will be encouraged to select and convert some of these farms to forage production and beef fattening centers.

This would result in an immediate increase in beef production and at the same time could be used for an extension program.

2. A major objective of the ALPP is to help establish an institution within the GOT to manage and coordinate the national livestock production effort. Although an administrative unit has been established, as stated in Section II, there are problems concerned with administrative responsibility and overlapping effort by some GOT services engaged in the livestock sector. In an effort to improve administration of the project, a series of meetings were held between the USAID Senior Sector Advisor - Agriculture and the Secretary of State for Agriculture to review the problem and discuss a means of improving project administration. This resulted in the appointment of a commission (see Section IV) to study the entire GOT livestock sector. The commission has prepared a final report with specific recommendations for the reorganization of the GOT livestock production sector. Implementation of their recommendations should result in an improved administrative structure for the ALPP, and better enable the Project Director to coordinate all donor assistance to this sector.

Submitted by: Orvil Godman, Project Officer
Paul Corak, Irrigation Advisor
Meril Carter, Range Management Advisor
Eugene Webb, Feed Grain Advisor

Distribution: Mr. H. Najjar, Proj. Dir.

DIR-1
PFS-1
AGR-13
C&R-4

with assistance from the Tunisian counterparts.

USAID/TUNIS/AGR
July 25, 1972

BEST AVAILABLE COPY

ATTACHMENTS

<u>Number</u>	<u>Title</u>
1	Plan of Work
2	Organigram
3	Livestock Production on Selected Farms
4	Inventory of Seeds in Storage - El Grine
5	Schematic Diagram of El Grine Perimeter

BEST AVAILABLE COPY

D. Project's activities will also be coordinated with TUN No. 45 - Integrated Planning, TUN No. 18 - Training Staff for Agricultural Education and Production, TUN No. 29 - Irrigation and Drainage, TUN No. 30 - North African College of Agricultural Engineering, TUN No. 25 - Agricultural Development in Central Tunisia with the World Food Program *and Holland Aid Program to Train Tunisian Technicians in Irrigation Techniques (DERFC)*

X. OTHER COUNTRY DONORS

Livestock and forage production programs of donor countries listed below and activities of other donors will be coordinated and cooperated with:

- | | |
|------------|------------|
| A. Spain | D. Holland |
| B. Belgium | E. Austria |
| C. Germany | F. Canada |
| | G. Austria |

Tunisian project director and USAID project manager will contact key individuals of each country and develop a system to coordinate and integrate all assistance.

XI. Support the approval and financing necessary to implement the following projects:

- a. Borj Toum (proposed) (See attached Project Plan)
 - (1) Irrigated forage production. Develop approx. 100 ha.
 - (2) Irrigated forage seed production - alfalfa-bersim-maize, etc. Develop approx. 50 ha.
- b. Beja Farm (proposed) (See attached Project Plan)

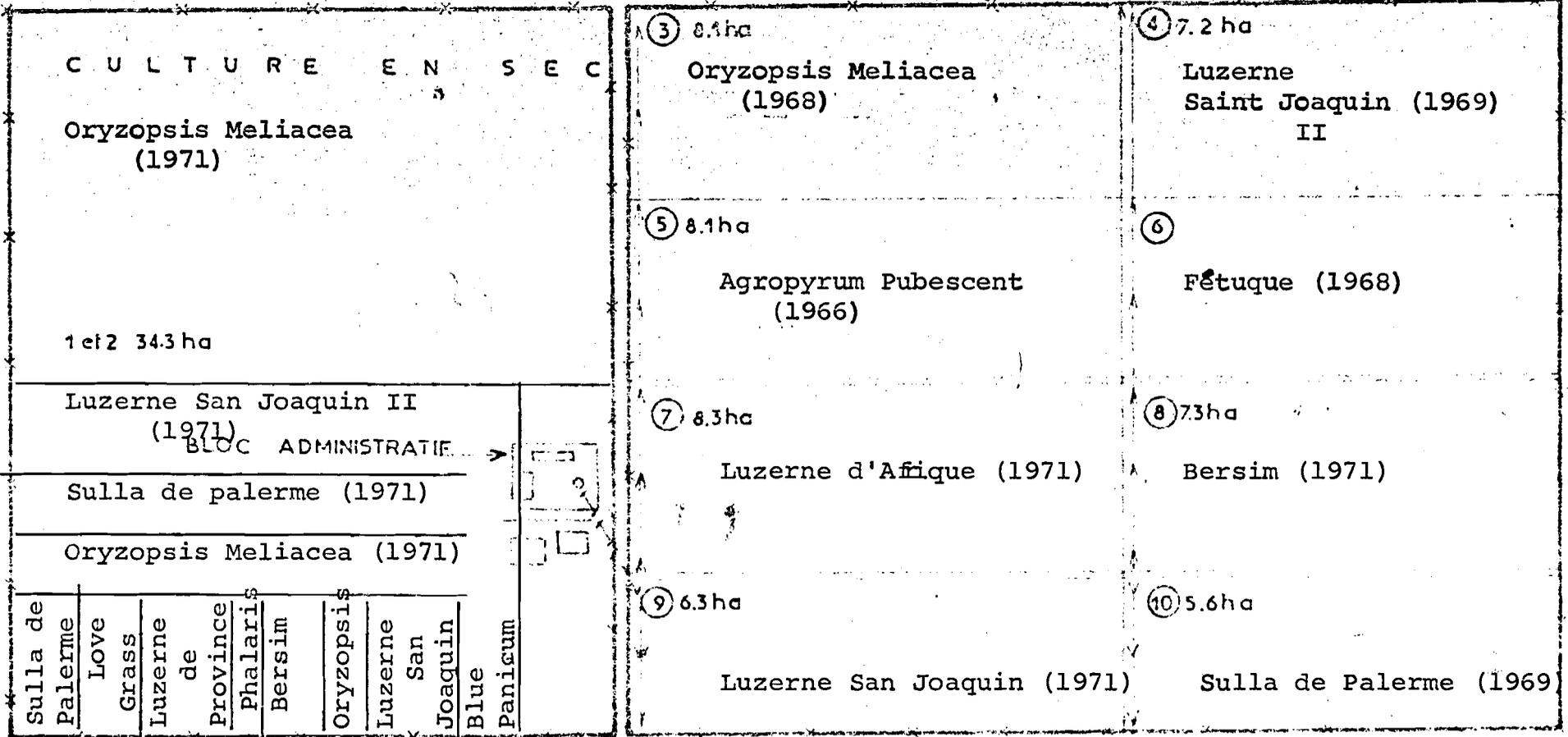
(1) Feed lot fattening of baby beef - a joint production-extension effort with regular field days. Local farmers to use the facilities such as feed grinder-mixers, etc.

BEST AVAILABLE COPY

CENTRE DE PRODUCTION DE SEMENCES FOURRAGERES DEL GRINE

CARTE DES PROGRES MENSUELS

CULTURE IRRIGUEE



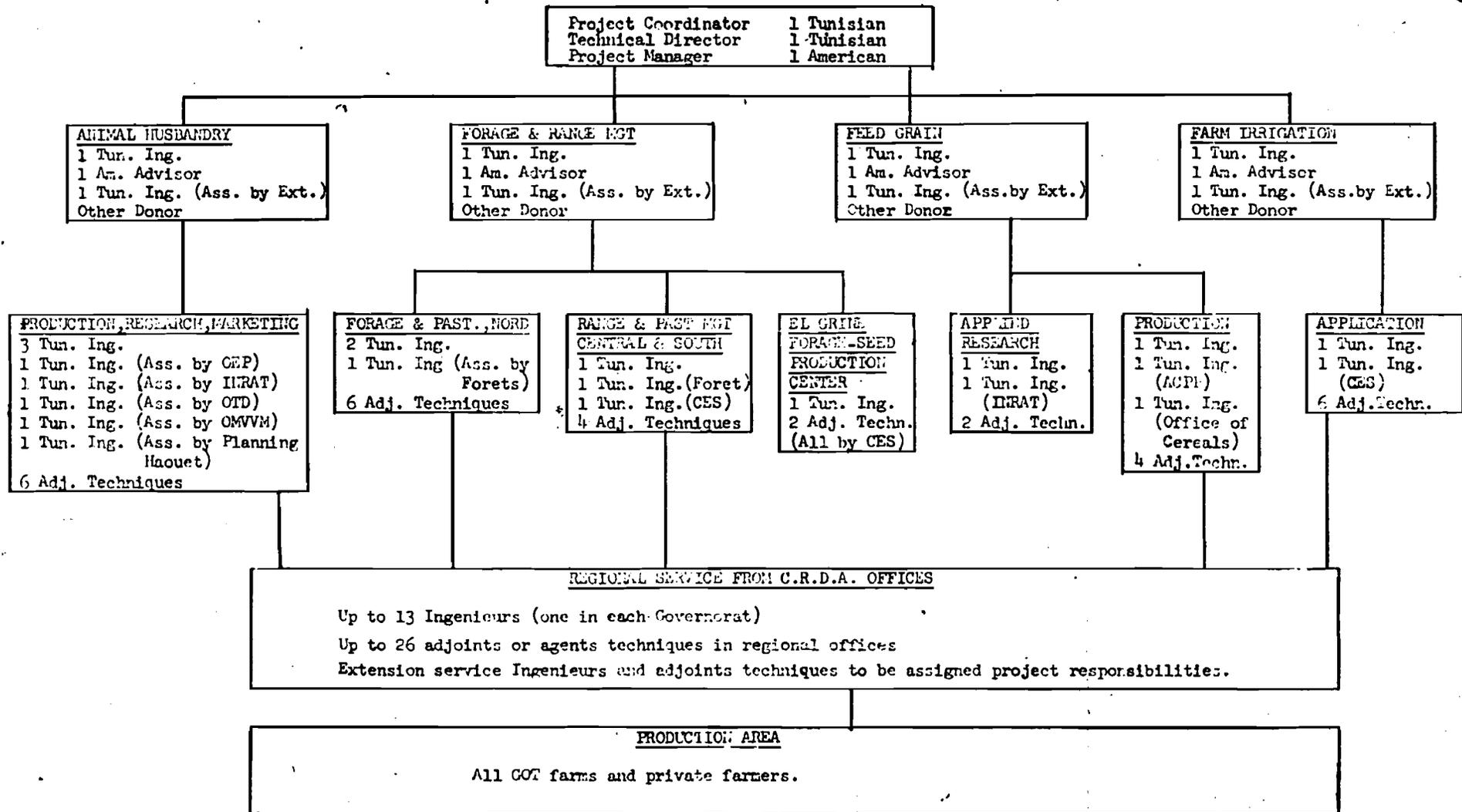
BLOC ADMINISTRATIF

Luzerne San Joaquin II (1971)
Sulla de palerme (1971)
Oryzopsis Meliacea (1971)
Sulla de Palerme
Love
Grass
Luzerne de Province
Phalaris
Bersim
Oryzopsis
Luzerne San Joaquin
Blue
Panicum

ROUTE G.P.3

BEST AVAILABLE COPY

10



BEST AVAILABLE COPY

LIVESTOCK PRODUCTION ON SELECTED FARMS

ATTACHMENT NO. 12

C A T T L E	Governorate of	Governorate of	Governorate of	Governorate of	T O T A L
	Tunis	Bizerte	Béja	Jendouba	
	# of Farms +12	# of farms = 4	#of farms = 7	# of farms = 7	# of farms = 20
Cows	278	220	310	216	1024
Heifers	89	88	109	150	436
Bull calves	55	26	110	93	284
Heifers calves	55	36	142	83	316
Young bulls (fattening Program)	43	33	102	103	281
Hard bulls	7	5	12	6	30
T O T A L	527	408	785	651	
					GRAND TOTAL 2371

Weighing Program (cattle)

Number of farms covered by the program	20
Number of trips with scale	63
Number of animals weighed	524
Number of weights taken	1075

sheep					T O T A L
ewes	250	1020	1108	315	2693
Young ewes	-	164	146	308	618
Young rams	3	2	107	53	165
Lambs	80	178	313	81	652
Ewe lambs	120	255	534	54	963
Rams	10	30	54	29	123
T O T A L	463	1649	2262	840	
					GRAND TOTAL 5214

BEST AVAILABLE COPY

PROJET DE L'OUED MERGUELLIL
CENTRE DE PRODUCTION
DES SEMENCES FOURRAGERES
D'EL GRINE

ATTACHEMENT NO. 4

El Grine le, 7/7/72

GOVERNORAT DE KAIROUAN

INVENTORY OF SEEDS IN STORAGE
EL GRINE

# d'ordre	E S P E C E S	CLEANED SEED	
		1972 Harvest	IN METRIC TONS
			Quantite en T. 5/3/72
1	Blé Mexicain		12.600
2	Mais Kansas 1859		0.900
3	Sorgho à graines		0.850
4	Phalaris truncata		0.029
5	Phalaris tuberosa		0.027
6	Oryzopsis meliacia	*3.00	8.233
7	Agropyrum elongatum	**---	0.040
8	Oryzopsis meliacia Holiformis		0.007
9	Atriplex		0.044
10	Rodhes grass		0.007
11	Love grass		0.322
12	Blue panicum		0.050
13	Chlores		0.004
14	Sorgho traité de l'inrat		0.005
15	Panicum antidotal		0.044
16	Sandio orchard grass		0.004
17	Sudan grass		0.175
18	Ray grass		0.238
19	Fétuque	1.470	1.570
20	Luserne san Joaquin II	**---	0.050
21	Luserne d'Afrique	**---	0.280
22	Luserne Australienne		0.020
23	Luserne de provence		0.089
24	Sulla de palerme	3.140	3.200
25	Sulla spontané		0.200
26	Sulla decortique		0.012
27	Lentille		0.018
28	Bersim	5.000	5.050
29	Vesce		0.300
30	Goya Bean		0.012
31	Russi anolive		0.085
			34.471lb

* Estimated: Harvested but not yet cleaned.

** To be Harvested in late July & August, 1972

BEST AVAILABLE COPY

22

ACCELERATED LIVESTOCK PROJECT

PLAN OF WORK

I. PERSONNEL AND ORGANIZATION

- A. Designate Technical Director and assign personnel to key positions
- B. See Attachment No. 1 - List of Potential Personnel and Organigram
- C. Obtain immediately physical components of office space (3rd floor ACPP building)
- D. Select and obtain machinery and equipment to begin work (see Attachment No. 2 - Project Commodity Needs)
- E. Make personnel contact with members of Advisory Committee regarding project operations. Hold first official meeting of Advisory Committee in October 1971. Meeting to be called and conducted by representatives of the Ministry of Agriculture and the project coordinator

II. OPERATIONS

Technical assistance, commodity support and training in improved management techniques will be used to first raise production and second to achieve extension results. Production factors on these farms to be characteristic of the locality (management machinery seeds credits etc.).

A. Private and Cooperative Sector

Provide direct support (commodity and technical assistance) on 5 to 10 selected private farms in each gouvernorat. Selection of farms to be made jointly with each Commissar of Agriculture and with local extension service workers. Commissar to designate liaison technician to work with our project.

1. Support and assistance will be for improved livestock and forage production and will consist of:

a. development of the full potential irrigation for each farm to be used for forage production (corn, sorghum sudan grass, alfalfa, etc.);

b. training in agronomic rotations that will include forage crops both dry land and irrigated sectors;

c. training and support in raising and fattening livestock (animal husbandry methods, performance control, management techniques, etc.);

- d. proper management and use of range and pasture;
- e. guidance in improved breeding program which upgrades native breeds;
- f. assistance in development of improved storage and marketing and processing facilities;
- g. guidance in proper land use that includes use of cultivated lands for pasture and forage crops in the rotation;
- h. guidance in animal health and sanitation leading toward control of livestock diseases;
- i. establish in selected ^{Gouvernorats} basic units of demonstrational type machinery such as special type grass seed drills, forage harvestors feed grinders livestock scales and performance testing materiel etc. to facilitate inovation and application of livestock and forage production techniques.

2. Actions are scheduled to begin as follows:

First year of project (1971-72)

- a. Meet immediately with Commissar of Agriculture in the four northern gouvernorats of Tunis, Beja, Bizerte and Jendouba. In the initial stage the emphasis will be on beef production.
- b. Select the farms and begin actions.
- c. Correlate and coordinate all actions and selections with the German Agricultural Extension Project at Jendouba and with the proposed extension Livestock Baby Beef Fattening Program of FAO's Tunisia No. 17 in the four north western gouvernorats.
- d. Meet with all Commissars of Agriculture in remaining gouvernorats and complete preliminary planning work for country-wide participation as scheduled below.

Second year of project (1973)

- a. Continue support and reinforcement of all actions undertaken during first year of project in the Tunis, Beja, Bizerte and Jendouba gouvernorats.
- b. Begin project activities on selected private farms in the gouvernorats of Le Kef, Kairouan and Sousse. All selection and support activities to be coordinated with the Commissar of Agriculture and with the FAO No. 25 PAM project.
- c. Emphasis in these gouvernorats will also include sheep production and range management as well as cattle production.

d. Use the selected farms as model farms and for demonstration to encourage increased production in the entire area.

Third year of project (1974)

a. Continue support and reinforcement of all previous actions in the above named governorats.

b. Meet with the Commissars of Agriculture and start project activities on selected farms in the governorats of Kasserine, Gafsa, Sfax, Gabes and Medenine.

c. Use the selected farms as models and for demonstration in order to extend the techniques to all livestock producers in the governorats.

d. Cattle and sheep production and range management techniques will all be emphasized on farms selected in these governorats.

Fourth year of project (1975)

a. Support and reinforce all actions started in all governorats and use them as models and demonstrations to extend livestock and forage production management techniques to other livestock producers in Tunisia.

B. GOT Farm Sector (1971-75)

Technical assistance and commodity support to begin immediately as follows to:

1. O.E.P.

a. Borj El Amri

(1) Support beef fattening operations.

(2) Increase irrigated forage to maximum of potential - corn-sorghum-sudan grass-alfalfa-berسيم, etc.

(3) Increase feed grain production - barley-corn-sorghum.

(4) Establish range and pasture management.

b. Coordinate project's activities with O.E.P. farms at Sedjanene (German), Fretissa (Belgian), and Zama (Austrian).

c. Coordinate project's activities with irrigated alfalfa production project at Chenchou.

25

2. O.T.D.

a. Expand irrigated feed and forage production at selected farms such as Enfidaville.

b. Encourage O.T.D. to designate and convert selected O.T.D. farms to forage production baby beef fattening centers. Provide support and technical assistance.

c. Coordinate activities on the selected cooperatives with O.T.D.

3. O.M.V.V.M.

a. Expand irrigated forage production trials at Lezdine.

b. Establish irrigated demonstration plots designed to show advantages of border and corrugated farm irrigation methods.

c. Encourage OMVVM to designate and convert selected OMVVM farms to baby beef fattening centers. Provide support and technical assistance.

4. Use production methods and facilities established above as models and demonstrations for extension of livestock and forage production techniques to all Tunisia.

C. Prepare Inventory for Short and Long Term Plans of Livestock & Forage Production

Develop inventory of the livestock production potential of cattle and sheep and the forage and feed-grain production potential.

1. Coordinate activities with and support the current effort of the Bureau du Plan et du Développement Agricole to:

a. Establish the status today of livestock production as result of the plan of the last 10 years.

b. Develop short-term (3-4) plan of livestock production and goals. (by April 1972).

c. Develop long term plan (10-12 years). (by March 1973).

2. Coordinate actions with economic recommendations of the Minnesota team. Assign responsibilities to a project technician for working with their Agricultural Economist as necessary to develop livestock and forage production information.

3. Project teams of Ingenieurs and Adjoints Techniques to begin immediately the job of contacting key officials as follows:

O.T.D.
O.M.V.V.M.
O.E.P.

Each Commissar of AG (for private sector). (Suggest several small meetings consisting of about ten Privees each attending in each gouvernorat).

4. This survey to establish:

- a. Potential capacity of each livestock production center - GOT or Private.
- b. Actual figures of animals that can be obtained and fattened.
- c. Number of hectares and the forage unit production potential for both irrigated and dry land sectors.
- d. Overall potential for range and pasture improvement.

5. Inventory will be used to estimate and establish goals and a short term work plan (First Phase) and a long term plan (10-12 years) for livestock and forage production.

D. Grass Seed production

for forage grasses and legumes and feed grains in Tunisia will be increased and production methods improved.

a. Cooperate with Forest Service and C.E.S. to support and reinforce the El Grine Seed Production Center that was established with USAID assistance:

- (1) Increase seed production of alfalfa and bersim to maximum (56 hectares).
- (2) Obtain electric pump to replace the existing diesel.
- (3) Conduct survey to determine feasibility of increasing the irrigated section for seed production by approximately 40 hectares.

E. A range and pasture

management program will be set up. A deferred grazing program will be initiated to demonstrate how overgrazed grassland can be improved and future production potential insured. The deferred grazing program established by the Oued Marguelli Watershed Project (OMWP) will be supported and expanded by cooperating with C.E.S. and the Delegate of Maktar. The Forest Service, Soils Conservation Service (CES) and the FAO will cooperate in developing a country wide range and pasture management program.

III. TECHNICAL GUIDANCE PROGRAM AND ACTIONS (1972)

Establish immediately practical technical standards for conducting and supporting a livestock and forage production program which include: (Use recommendations of INRAT FAO No. 17, OEP, National Seminar, (May 1971) Kairouan Sheep Seminar - June 1970 and the OMWP as guides.

- A. Animal Husbandry Practices
- B. Agronomic Recommendations (feed grain and forage production)
- C. Proper Range and Pasture Management (collaborate with Forest Service)
- D. Farm Irrigation Guide
- E. Meat Processing and Marketing
- F. Animal Health Standards and veterinarian needs. A U.S. veterinarian will be obtained as needed and practical, thru use of TDY (see attached proposal for suggested work organization plan.)
- G. Performance Control -

Strengthen the "Control Services Program" of the Animal Production section of PAVA by providing technical assistance and support to insure better control of the Tunisian herds productivity.

H. Genetic Improvement -

The project's program will encourage and support existing artificial insemination program. Coordination and cooperation with the Belgian bilateral assistance will be established and maintained by the project's animal husbandry section.

IV. STRENGTHEN THE EXTENSION SERVICE

Ingenieurs from the Office of the Extension Service will be assigned coordinating duties and responsibilities with the project in the following four disciplines:

- A. Animal Husbandry
- B. Range Management and Forage Production
- C. Feed Grain Production and Utilization (crop rotations, processing, etc.)
- D. Farm irrigation

This action will serve three main purposes:

A. Provide counterpart training to the Extension Service and strengthen this organization.

B. Promote a national coordinated effort in livestock production.

C. Assure a future cadre of trained extension service technicians.

V. COORDINATE THE EFFORTS OF OTHER GOT AGENCIES CONCERNED WITH LIVESTOCK PRODUCTION

Tunisian project director and USAID project manager will contact key individuals of each GOT agency and develop a system to coordinate and integrate all assistance.

The Minister of Agriculture will require each of the following agencies to appoint a representative to coordinate their activities with the project:

A. O.E.P. - for overall production and demonstration activities

B. O.M.V.V.M. - for overall production and demonstration activities

C. O.T.D. - for overall production and demonstration activities

D. INRAT - for research and technical guidance coordination

E. Forest Service - for range and pasture management program

F. Agronomy Faculty (old ENSAT) - for research and technical guidance and education coordination.

G. ACPD and Office of Cereals - for feed grain and forage production and research coordination.

VI. LEGISLATIVE AND FINANCIAL CREDIT MEASURES

Promote economic policies which will provide sound guidance and assist producer units in becoming stable enterprises by:

A. Propose laws and regulations governing the control and production of forage seeds so that farmers may be sure to get best quality seeds.

B. Support legislation banning the killing of female animals except those unsuited for reproduction or affected with a serious disease as evidenced by a certificate issued by a veterinary surgeon.

C. Support legislation fixing the minimum weights under which the killing of male animals should be forbidden and taking all measures necessary to put an end to clandestine killings.

D. Encourage breeders to keep a number of heifers that exceeds their renewal requirements (through suggested incentives subsidies).

E. Propose to Minister of Agriculture that he encourage banks to grant more easily loans for cattle fattening activities (purchase of animals, feeds, etc.)

F. Encourage legislation setting up a control on marketed compound feed.

G. Support the "Code of Health Laws" so that the "Veterinary Service" may protect more efficiently the national livestock and human health.

H. Encourage a tariff fixing the rates of animals, taking into account the various classes of meat.

I. Propose to Minister of Agriculture that he establish a system of buying feeder calves and channeling them to feeders and fattening centers.

VII. RESEARCH AND FEED GRAIN AND SEED CAPABILITY DEVELOPMENT

A. Forage and Feed Grain

Support for research will be increased in INRAT in cooperation with the Accelerated Cereals Production Project to develop stiff-strawed, high-yielding, disease-resistant cereal crops and legume grain and forage crops plus improved production management techniques, including fertilization, seed control, and rotation of crops. There is a serious need for a disease-resistant barley that will stand up with increased use of fertilizer.

Corn and sorghum production will be researched. Commodity support and technical assistance will be given INRAT and to Cooperative Centrale (CCSPS) for importing necessary seed of adapted hybrid corn and hybrid grain and forage sorghum.

The capability of CCSPS for future seed handling will be strengthened.

B. Animal Husbandry

Provide support to INRAT's research and experimentation work to improve technical knowledge in this field. Extend the network of experimental farms so as to develop systems of meat production better adapted to the country's ecological areas.

Improve the practical training of the personnel now employed in breeding through training programs.

Increase the number of high-level breeding specialists through a more appropriate students' guidance program that takes into account the country's needs in this field (zoo technicians, veterinary surgeons, laboratory personnel).

VIII. PARTICIPANT TRAINING

Participant Training in U.S.

A. Twelve academic and practical training scholarships for M.S. (Ingenieur Principal) study in animal husbandry, animal nutrition, plant materials and nursery management, range management and selected subjects of agronomy will be given.

Selection of these students will begin at once from experienced Tunisian Ingenieurs from both private and government sectors. The budget provides for at least six to begin school in FY 72.

A minimum of three students will be designated to leave for the U.S. no later than September 1972.

Returned participants with M.S. degrees will be assigned commensurate duties and responsibilities in Tunisian livestock and forage production.

B. Twenty to twenty five short-term training grants will be made for three to six months in extension livestock management education, forage and feed grain production, feeds and feeding, range and pasture management and production of irrigated forage and pasture crops.

C. Several key Tunisian officials and technicians will be sent as necessary to the U.S. for short, ten to twelve week specialized study tours to become familiar with livestock, feed and forage production and range management methods in the U.S. Participants for this specialized training should be selected as soon as possible.

D. Selected project technicians and key Tunisian officials will be sent to appropriate livestock and forage production congresses and seminars.

IX. F.A.O.

The project will coordinate with all livestock production activities of F.A.O.

A. TUN No. 17 - Project training program will be coordinated with and commodity support provided to the farmer demonstration education and practical training programs at the F.A.O. Livestock and Forage Production Farm at Beja.

B. The project's demonstration program and farm selection will be coordinated with TUN No. 17 proposed livestock production and extension project in the Northwestern Tunisian when it is approved.

C. The project's demonstration program and farm selections will be coordinated with TUN No. 25 and the WFP in the five governorats of Kairouan, Kasserine, Gafsa, Sousse and Sfax.