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FEASIBILITY STUDY

FOR

DEVELOPMENT OF A BEEF CATTLE RANCH

IN

PAHANG, MALAYSIA

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FEASIBILITY STUDY

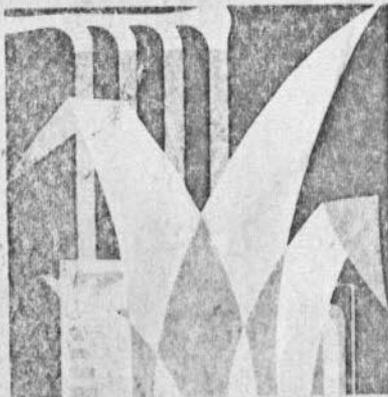
FOR

DEVELOPMENT OF A BEEF CATTLE RANCH

IN

PAHANG, MALAYSIA

OCTOBER, 1970



**AGRO
INDUSTRIAL
ASSOCIATES**
INC.

Honolulu, Hawaii

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Faculty of Agriculture

FEASIBILITY STUDY
FOR
DEVELOPMENT OF A BEEF CATTLE RANCH
IN
PAHANG, MALAYSIA

BY
AGRO INDUSTRIAL ASSOCIATES, INC.
Honolulu, Hawaii
in Association with
WESTERN FARM MANAGEMENT CO.
Reno, Nevada

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SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

1.1 Summary and Description of the Project

The proposed cattle project involves the establishment of a 26,000 acre beef cattle ranch in Southern Pahang State, Malaysia, where terrain, climate and soils are suitable for large-scale ranching. This will be a pioneer development entirely new to Malaysia in its scope, operation and product. Land development is scheduled over four years with 6,000 acres per year to be cleared and planted to tropical grass and legumes.

It will be stocked with imported breeds of tropically adapted cattle crossed with selected native cows. 810 purebred Santa Gertrudis and Brangus heifers and bulls will be imported the first year along with 2,000 native cows. Another 4,000 native females will be purchased the following two years. With the expansion of the purebred herds, and upgrading of the native cattle, the herd will expand to approximately 20,000 head by the seventh year.

Management and technical direction will be provided by outside contractors until Malaysian managers and cowboys are trained.

The project will concentrate on producing quality grass fattened cattle for the beef market and breeding cattle for sale to a developing beef cattle industry in Malaysia and neighboring countries. In time as a more sophisticated beef market develops, feeding cattle to higher grade can be investigated.

1.2 Conclusions

1. Establishment of a large-scale cattle ranch in Pahang is technically and operationally feasible. Land, terrain and climate are suitable. Tropical cattle breeds, suitable grasses and legumes, and technical knowledge and experience are available.

2. The project would serve the national interest.

It would help overcome the present animal protein deficiency. It would provide a stock of superior cattle adapted to tropical conditions to serve as a nucleus for expanding the cattle industry in Malaysia and the neighboring countries. It would help diversify land usage, and provide employment and training for Malaysians. It could also be adapted to integrate small freeholders or settlers into the program.

3. The forecasted financial results are encouraging for livestock developments of this nature. The nature of the cattle business is such that there must be a long period following initiation before the income flow starts and a longer time before the investment pays off. Within this frame of reference, the project is financially feasible and provides adequate returns in the form of income from the cattle operation once it is established. The results forecast here compare favorably with similar pioneering projects elsewhere.

4. Government or multi-national financing will be required. The project during the development stage will not appeal to the average investor, and will probably require an investment by the State or National Government supplemented by loans from multi-national agencies such as the World Bank or the Asian Development Bank. There may be a place for the private investor who can benefit tax-wise from the early operating losses, and who is willing to wait for his investment to mature.

1.3 Recommendations

It is recommended that the following steps be taken

to implement the project:

1. Form a Cattle Development Company under the jurisdiction of the Pahang State Development Corporation. At the start, the Pahang State Development Corporation would be the primary stockholder, and would make seed capital available to get the project underway.
2. Make the recommended land area available to the Cattle Company in the form of a long term lease, with the normal premium and rental payments capitalized to form the basis of equity participation by the Pahang Development Corporation in the Cattle Corporation.
3. Contact the World Bank and the Asian Development Bank and request their financial assistance in the form of long-term loans.
4. Request the National Government to participate in the program through investment or loan capital, in recognition of the benefits to the nation as a whole in pioneering this new industry.
5. Make an air photo evaluation of the area, using the stereo-photo pairs now available, to lay out in detail the principal ranch areas, roads, fence lines, etc.
6. Request the FAO to make cattle experts available to help implement the project; or contract with an experienced private ranching company to prepare a detailed development plan, and to provide management, technical assistance and training services.
7. Call for tenders for clearing the first 6,000 acres, and start clearing and land preparation as soon as possible.
8. Start a grass garden on the first cleared areas for evaluation of different varieties of grasses and legumes and to serve as a source of seed and planting material.
9. Locate a supply of superior local cattle for the foundation herd to be crossed with imported stock.

INTRODUCTION

II. INTRODUCTION

2.1 Background

The Pahang State Government has recognized the need for the production of quality beef cattle in Malaysia. The Pahang State Development Corporation was assigned the responsibility for selecting a suitable area for a large scale beef cattle operation, determining its feasibility and economic viability and proceeding with its implementation should the findings prove the project feasible.

The Pahang State Development Corporation in cooperation with the Associated Development Corporation Ltd., a Malaysian corporation, selected an area of approximately 26,000 acres in Southwest Pahang State, near the Pahang-Johore border, as a tentative site for the cattle ranch. They arranged with Agro Industrial Associates, Inc., of Honolulu, Hawaii to undertake the feasibility study and prepare a development plan.

Cattle experts and economists of Agro Industrial Associates, Inc., and Western Farm Management Company visited Malaysia during August and September of 1970 to evaluate the project area and gather data. They then returned to Hawaii to consult with home office personnel and specialists, and to complete the final report.

2.2 Basic Objectives

Principle objectives of the project are to:

1. Provide a source of reasonably priced animal protein by the establishment of a large scale beef cattle ranch.
2. Provide a source of breeding stock of superior cattle, adapted to tropical conditions, for expanding the cattle industry in Malaysia and in neighboring countries.
3. Diversify Malaysia's agricultural base and upgrade the use of potential agricultural land.
4. Save foreign exchange expenditures now made on meat imports.

5. Provide employment and train Malaysians in modern ranching practices.
6. Provide the opportunity for small freeholders or settlers to participate in the livestock program.

PROJECT AREA

II. PROJECT AREA

3.1 Location

The project will be located on approximately 26,000 acres in Southwest Pahang, Malaysia just above the Johore-Pahang boundary. The lower edge of the property lies approximately 30 miles north of the town of Segamat, Johore as indicated on the attached map, Exhibit 1, following Section III. Segamat is on the main road from Kuala Lumpur to Johore Baru, 120 miles from Kuala Lumpur and 108 miles to Johore Baru, which is across the channel from Singapore.

An all-weather laterite logging road runs from Segamat up through the property to the Rompin River which forms the property's Northern boundary. The Southern boundary is approximately along latitude N.2°46" and the Eastern boundary is the Sekin river.

The property averages 10 miles across from East to West and ranges 4 to 8 miles in depth from North to South. Approximately 3,000 acres lie to the West of the main logging road and 23,000 acres to the East.

A more detailed map of the project area is shown in Exhibit 2, following Section III.

3.2 Terrain and Soils

The area is in heavy native forest and jungle most of which has never been logged. The terrain is flat to gently rolling, with small stream beds at frequent intervals, and abundant natural water.

Elevation ranges from a high of 1,740 feet at the approximate center of the area to a minimum of about 500, sloping generally from the center to the East and West. The rolling and undulating terrain causes localized slopes in all directions. The land has good surface drainage, as the runoff has good outlets through the many small streams, although there are a few localized swampy areas along the Rompin River to the Northeast.

Soil is a pale yellowish brown to whitish grey, mainly fine sandy clay loams developed from laceous shale and

and sandstone. As in most tropical forest areas, it is of below average fertility being low in available nitrogen, potassium and phosphorous, but is capable of supporting a heavy stand of grass and legumes with proper fertilization.

The photos in Exhibit 3, following Section III, show examples of the terrain before and after clearing.

3.3 Climate

Temperature and rainfall amounts and distribution are favorable for heavy pasture growth year-round. With some nutrients added, the soils can support pasture grasses and legumes for normal to heavy grazing.

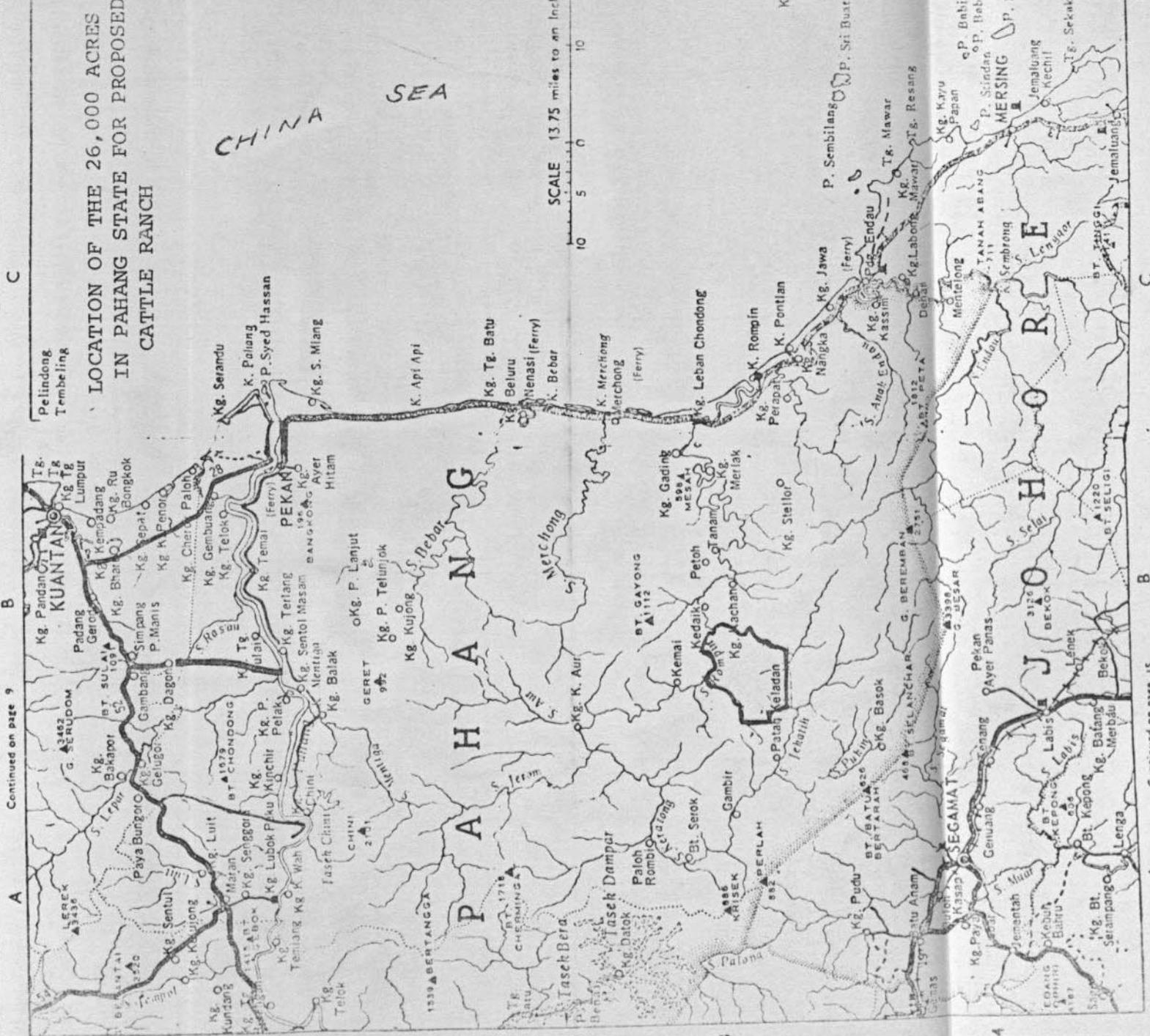
Mean annual rainfall is approximately 67 inches, with fairly uniform distribution throughout the year, as shown in Exhibit 4, following Section III. This chart shows mean monthly rainfall and temperatures at the Kuala Bera Forest Checking Station, which is representative of rainfall and temperatures in the project area. Rainfall ranges from 3.15 inches in August to a high of 7.69 inches in October. Temperatures range from monthly average maximums in the low 90^o's and high 80^o's (°F), and minimums in the low 70^o's, an agreeable combination of hot days and cool nights throughout the year.

None of the climatic factors are detrimental to cattle production using cattle breeds that have genetic adaptability to tropic conditions. The temperatures and sunlight intensity are not severe enough to require shading of the cattle during the day.



LOCATION OF PROPOSED CATTLE RANCH
PAHANG, MALAYSIA

EXHIBIT 2



Continued on page 9

C

Pelindang
Tembeling

LOCATION OF THE 26,000 ACRES
IN PAHANG STATE FOR PROPOSED
CATTLE RANCH

CHINA
SEA

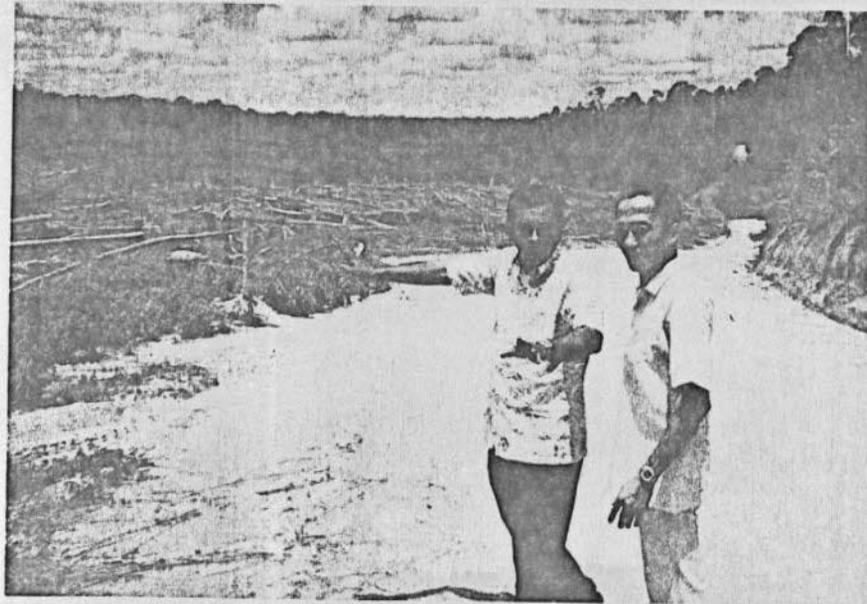
SCALE 13.75 miles to an Inch

Continued on page 15

A

B

C



View of laterite road running through project area, with typical rolling lands in background



Timber extracted prior to clearing. The stand of forest shown here is typical of project area



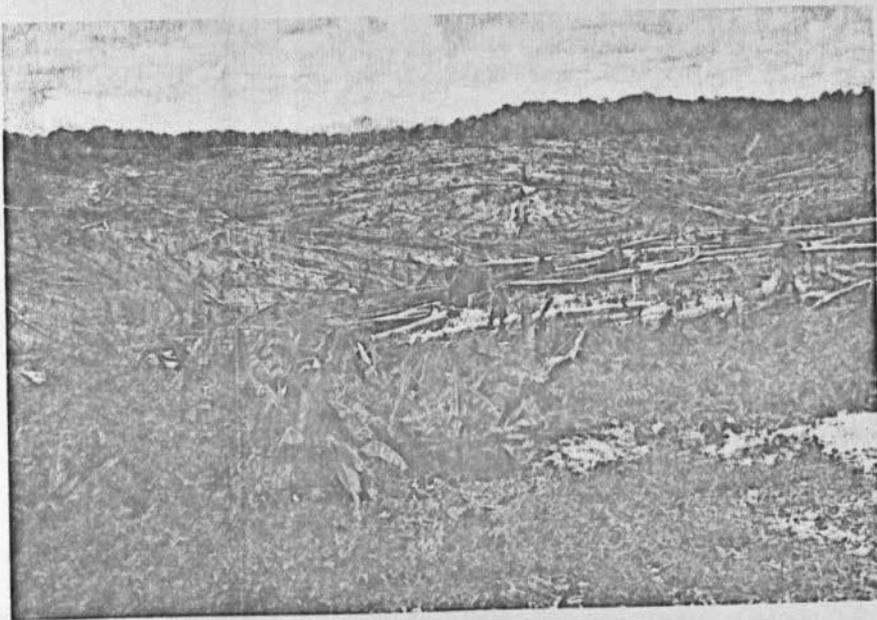
Example of clean clearing that will be done on ranch area to permit mechanical operations

PROJECT SITE

Land being cleared
showing native
forest in background



Nearby land typical
of project area,
being cleared for
oil palm



Cleared land planted
with oil palm,
with native forest
in background. Not
growth of tropical
kudzu legume in
cleared area



EXHIBIT 4

MEAN MONTH RAINFALL AND TEMPERATURES

(From Kuala Bera Forest Checking Station)

	<u>Mean Monthly Rainfall (inches)</u>	<u>Average Temperature (°F)</u>	
		<u>Max.</u>	<u>Min.</u>
J	5.96	88.8	71.9
F	6.81	90.2	71.8
M	4.29	90.9	72.5
A	5.74	90.4	73.7
M	6.59	89.7	73.6
J	4.40	88.9	72.6
J	5.45	88.4	72.3
A	3.15	88.3	71.8
S	5.22	88.2	72.3
O	7.69	88.0	72.4
N	6.91	87.8	72.5
D	<u>6.01</u>	<u>87.9</u>	<u>72.1</u>
Total	67.62	89.0	72.5

DEVELOPMENT PLAN

IV. DEVELOPMENT PLAN

4.1 Land Clearing and Preparation

It is recommended that a system of land clearing be followed similar to that reported by Tractor Malaysia as used in the Jengka Triangle. This would take place following logging of the area. Trees would be sheared at ground level and all logs and brush windrowed for drying and burning. Following windrowing this cleared area would receive a heavy discing followed by a lighter harrowing and leveling. The land would be in condition for the initial fertilization and planting at this stage. The windrows should be burned prior to planting and the ground prepared beneath them. However, planting of the open areas should not wait for burning should at any time weather delay this phase. The photos in Exhibit 5 following Section IV illustrate this clearing system.

During the clearing operation, spreading trees that afford shade should be preserved. This would also be necessary for trees which can provide future fence posts. Final detailed study of the area prior to clearing would determine the development pattern and allow for continual and systematic follow up with planting and facilities development. Cleared land should not remain idle but be put into pasturage and cattle as rapidly as possible.

Clearing and Planting Schedule

A clearing and planting schedule of 6,000 acres per year is anticipated the first four project years developing 24,000 acres out of the 26,000 acre total. This rapid schedule is deemed necessary to put the land into production as rapidly as possible and reduce the lag between investment and income development. This disadvantageous delay is historical and unavoidable in pioneering a cattle operation, but should be minimized to as great a degree possible.

4.2 Pasture Establishment and Maintenance

Planting and establishment of pasture must follow land preparation as rapidly as possible to inhibit jungle regrowth.

Crawling tropical grasses and legumes are recommended for planting. They will form a dense mat and hold back volunteer noxious regrowth which can be costly to control in tropical areas. This can be a prime factor in causing ranching with its non-intensive land use to be uneconomical.

There are several grasses and legumes of this type which should respond well to project conditions. The determination of those which adapt the most advantageously should be attempted as soon as possible. This can be accomplished through the planting of a grass and legume garden which can also serve to identify the most practical and economical fertilization program.

Suggested grasses for trial are Taiwan Pangola, Kikuyu, Para, African Star and Brachiarias Decumbans and Brisantha. Legumes are Desmodium Intortum, Centro, Stylo, and Siatro. A dense stand of Pangola and Desmodium Intortum is known to afford excellent pasturage. Kikuyu is also desirable as it affords winter, wet weather growth and heavy grazing when Pangola is somewhat dormant. Para affords excellent growth and nutrition in wet, boggy areas. The photos in Exhibit 6 following Section IV illustrate some of the recommended grasses.

Grasses such as Pangola, Kikuyu and Para must be planted from runners while the legumes would be established from seed. After the most adaptable grasses are determined it will be necessary to plant acreage to be used as a harvest source for plant material. An acre of plant material should supply cuttings four times annually for from 10 to 40 acres of plant area. This is dependent on the variety, method of harvesting and planting, etc. Speed in this phase is also necessary to make the plant material available as rapidly as possible.

Planting Program

The early rate of land preparation will move faster than will the development of plant material for the selected crawling grass. This will probably necessitate that at least the first 3,000 acres be planted to a proven bunch grass, such as Guinea, which can be planted from seed. If early plantings of the crawling grass indicate that it does not close in and produce feed for heavy grazing as rapidly as anticipated, a

light seeding of Guinea can be planted in conjunction with it. This will assure heavy initial grazing while allowing time for the crawling grass to close in and force out the bunch grass.

The planting and pasture establishment schedule, like the land clearing and preparation, is scheduled at a rapid pace. With the available clearing contractors, equipment and labor for planting, fertilization and fencing, etc., it is reasonable to believe that the schedule can be met. It will require close supervision and pushing to meet production deadlines. However, the advantages to be gained by stocking the area rapidly are worth the effort and accelerated pace.

Fertilization

It is recommended that the area be fertilized with 40 N 150 P and 50 K at planting, and another 60 lbs of N during the first year to help rapidly close in and establish the planted area. By approximately six months after planting a new area should be ready for limited grazing. The proposed herd increase allows for lighter stocking rates during the heavy development years.

On an annual maintenance basis, average fertilization rates are estimated at 20 N 50 P 20 K. This does not envision all pastures being fertilized every year.

Weed Control

Noxious plant regrowth should be at a minimum with a heavy stand of a crawling grass. Control of pests that do volunteer can be handled by spot spraying of the hormones 2,4-D and 2,4-5T or by hand grubbing. Broadcast spraying would not be practical due to the contemplated legume growth.

There is every reason to believe that quality tropical pasture can be developed on project lands. Weak soils and heavy rainfall prohibit the expectation of grass high in dry matter and quality when compared to temperate zone forage. However, heavy tonnages can be produced and converted into quality beef if all tropical conditions relating to grass, livestock and existing conditions are considered and accounted for. This covers areas such as fertilization, supplementing dry matter to yearling cattle, controlling internal

and external parasites and breeding cattle adaptable to tropical conditions.

4.3 Water

Topographical map information and area inspection indicate that natural water is plentiful in the proposed project area. There should be no necessity to develop stock water.

As the area is cleared and flowing water definitely located, the pasture and fencing pattern can take them into account. Pastures and rotations will be planned to assure waterings in all pastures and available to corrals and holding areas.

The headquarters and any living areas will need purified water. It is assumed that water for drinking purposes will require chemical treatment.

4.4 Facilities

Cattle ranching does not require heavy investment in buildings and other facilities.

Fencing and corrals are necessary for herd segregation and working facilities. The operation will be intensive when compared to the average range cattle operation with more investment in fencing and corrals than necessary in arid areas. Fence and corral posts will be available on the site. Barbed wire will be used for fencing and heavy rough cut lumber for corral siding. All corrals will have separating and squeeze chutes for the working, branding and doctoring of the herd. Dipping vats for tick and fly control will also be available at each corral. In this manner as herds are routinely shifted they can be sprayed or dipped for parasite control. Pastures will be laid out funneling into the working areas to enable cattle being brought in with a minimum of labor. Individual cowboys can bring selected animals into the corrals for doctoring.

The theory of these rotations is indicated on the attached diagramatic map of the area. (See Exhibit 7 following Section IV) This is a schematic plan only to illustrate the principle. Actual division of the area must be made during development, to fit the land configuration.

A preliminary estimate would indicate about 40 pastures. Final decision as to the number and shape of pastures would be determined by accurate knowledge of the terrain, permanent waters, etc. Another prime factor would be the project's intended final disposition. For example, should it eventually be allocated to small ranchers the optimum number of pastures and rotations would be somewhat dependent on the number of operators which would settle on the land.

Fence and corral repair should require little expensive repair for quite a few years provided the barbed wire and native posts and lumber will stand up under project weather conditions. Repair labor is not considered to be a significant cost item.

Buildings constructed will be for warehousing, housing, equipment sheds and a project office. These should be located in a central headquarters area. No remote housing should be necessary provided cattle rustling is not a problem. If cattle theft is a problem cowboys may need to live throughout the ranch.

Little will be needed in the way of improved roads as ranch equipment will be all wheel drive. Roads resulting from the logging operation should prove to be abundant and more than adequate.



ILLUSTRATION OF MECHANICAL LAND CLEARING

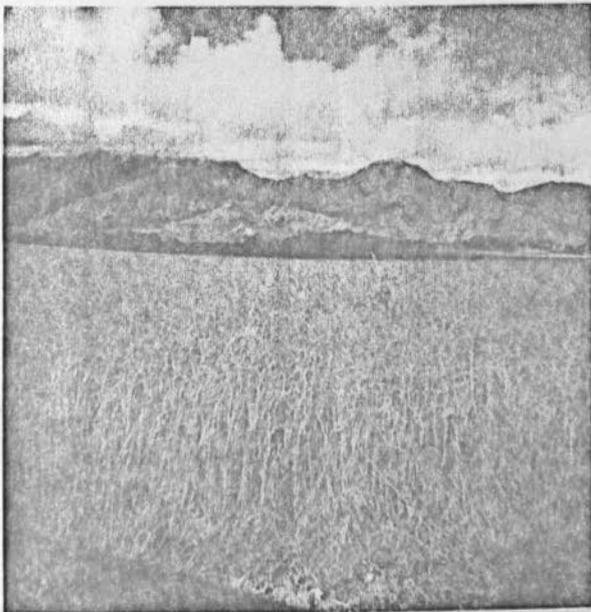
TROPICAL PASTURE GRASSES



AFRICAN STAR GRASS



PARA GRASS

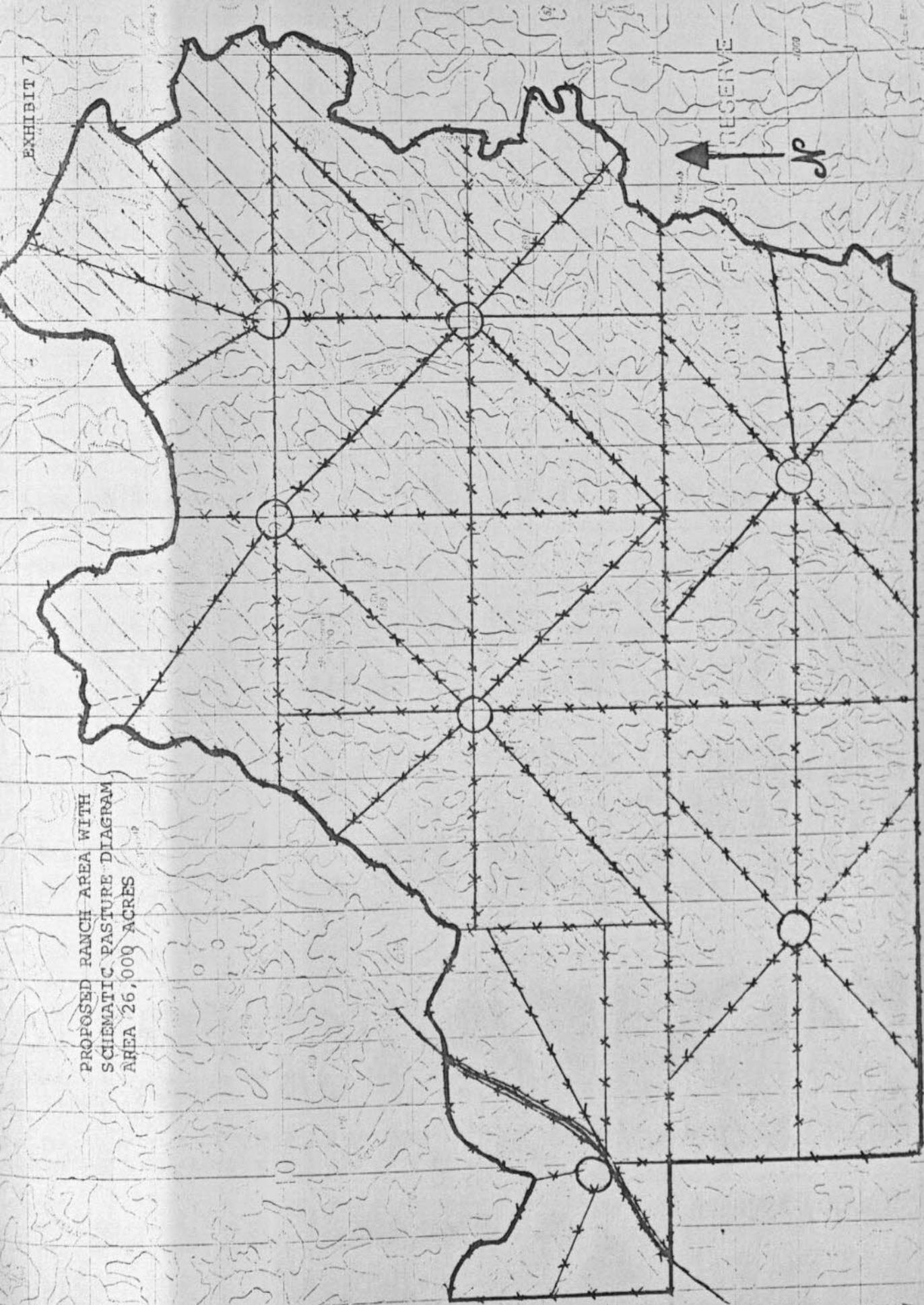


PANGOLA GRASS



GUINEA GRASS

PROPOSED RANCH AREA WITH
SCHEMATIC PASTURE DIAGRAM
AREA 26,000 ACRES



OPERATIONS

OPERATIONS

5.1 Cattle Breeding

Malaysia's native Kelantan cattle, such as those shown in the following photo, as well as the cattle of Indian origin referred to as the Local India Dairys, (L.I.D.'s) will not be satisfactory as productive quality beef cattle. (See photos in Exhibit 8 following Section V). Superior cattle will be necessary to economically convert the developed pasturage into beef. It will require the importation of more productive breeds.

It is recommended that two foundation herds of Santa Gertrudis and Brangus cattle be imported from the United States. These herds would consist of 300 heifers each along with sufficient bulls. Additional bulls would also be brought in for use with the grade herd until the project's purebred herds are producing bull requirements.

The Santa Gertrudis and Brangus are American breeds with 3/8ths Brahman breeding in their background. They were developed as breeds of cattle that would thrive under tropical conditions such as Malaysia's while producing beef of good quality. The combination with 5/8ths Angus in the Brangus and 5/8ths Shorthorn in the Santa Gertrudis accomplishes this. The photos in Exhibit 8 following Section V illustrate these cattle breeds.

Indications are at present that these cattle can be purchased in the United States and transported to Malaysia by air at a lower landed cost, for better quality cattle, than available from elsewhere.

Estimated per head landed costs are M\$2,625 for the heifers and M\$2,925 for the bulls provided return air freight cargoes can be obtained from the Orient to the United States.

The plan envisions expanding these two purebred herds as rapidly as possible while using the additional imported bulls, and raised purebred bulls as they become available, to upgrade 6,000 selected L.I.D. or imported Southeast Queensland heifers. These Australian heifers

would carry at least $\frac{1}{2}$ Brahma blood and be highly desirable. Although Malaysia currently will not allow the import of Southeast Queensland cattle, this may change and the importation of these heifers would undoubtedly speed up the improvement of the grade herd. It appears that these 6,000 grade heifers could be brought into the herd over a three year period while pasture development was being pushed. An estimated average cost of M\$900 per head is being used for landing these purchased heifers at the project.

Within 15 years the expansion of the purebred herds and upgrading of the grade herds would produce two straight-bred herds of Santa Gertrudis and Brangus cattle. The total herd would number 21,226 head or 14,375 animal units carried at a rate of 1.7 acres per animal unit. Animal units are computed at 1 for each mature animal, $\frac{1}{2}$ for a yearling and $\frac{1}{4}$ for a calf. The herd increase rate as estimated is detailed in Section VII. At this point individuals from these two herds would be crossbred to take advantage of hybrid vigor in the offspring without reducing the percentage of background Brahman blood. A further refinement, if considered desirable and financially practical at this point, would be the breeding of a percentage of the F_1 cross female with semen from bulls of English breeding¹ to somewhat improve beef quality. The photos in Exhibit 9 are of 17 month old steers of Santa Gertrudis-Herford, and Angus-Santa Gertrudis-Herford breeding. These steers were feed lot finished at that age to U.S. choice grade on a ration containing 72 percent pineapple bran under Hawaii's somewhat tropical conditions. Their liveweight was approximately 1,100 lbs.

The program, if carried out knowledgeably, should produce excellent fast growing cattle from the developed pasture. The produce will be in demand as beef and particularly desirable as breeding stock.

Cattle disease does not appear to be a serious factor and West Malaysia is in a far better position than many countries from this standpoint. It is fortunate in being free of such destructive diseases as foot and mouth, rinderpest and anthrax. To assure cattle health the herd must be kept under continuous and knowledgeable surveillance and care.

5.2 Cattle Operations

The knowledgeable handling of the cattle operations will be critical to the project's success. This holds true for technical aspects such as breeding plans and herd health to routine handling of the herd. Skill in this area can make or break going operations and will be paramount in developing a new operation with initially untrained personnel.

It will be necessary to train Malaysian cowboys in the handling of large herds; instruct them in the identification and doctoring of sickness; the identification and remembering of individual cattle in large herds; the handling of cattle in a manner which will always keep them quiet and manageable, etc.

Proper herd care is necessary to assure conception rates, calving percentages, the control of death loss and other factors that determine profit or loss. There can be no failure for any reason in the care of living animals upon whose production the project's success depends.

Seasonal breeding is planned for two periods of the year with separate herds. For example, half of the cows to be bred June, July and August, with calves dropping in the spring and weaning in December. The other half of the brood herd breeding December, January and February with calves dropping in the Fall and weaning the following June. This will aid in spreading sales over the entire year and also be advantageous in allowing for the use of top bulls two breeding season per year.

Replacement heifers will enter the brood herd a year after weaning at approximately 20 months of age. Replacement bulls will go out for the first time at two years.

During the herd build up and breed stabilization years approximately 80 percent of both the purebred foundation and commercial herd heifers will be held as replacements. As fast as they can move into the commercial herd the grade cows will be replaced. By the end of the 15th year the entire herd can be assumed to be stabilized as straightbred Brangus and Santa Gertrudis. At this point, heifer replacements as well as cow and bull culling for age will drop to approximately 15 percent of their respective numbers in the brood herds.

Dipping and spraying against ticks, flies, etc. will be routine with the shifting of cattle within rotations. Brood cows will be checked continuously during calving season and necessary vaccinations and doctoring will be performed as required. When necessary cattle will be drenched for internal parasites.

Mineral formulated from information gained from forage and blood analysis will be available free choice to the entire herd at all times. It will be formulated in a palatable form to assure consumption. Supplemental feed will be limited to yearling cattle at this critical age for energy, protein and dry matter consumption. Also to a lesser extent the two year old fattening cattle and bulls, if found necessary. Every attempt will be made to carry the brood cow herd on pasture and supplemented mineral.

5.3 Horses

Saddle horses with some working experience are scheduled for importation from Australia.

It is also recommended that ten U.S. Quarter Horse mares be imported along with the purebred cattle. At least five of these should be bred to an outstanding stallion and known to be in foal prior to shipment. A male colt from one of these mares could be retained as a stud for use with the purchased mares and their female offspring to raise horses for ranch work. The imported mares could be used for both work and breeding in the early years eventually all being used in the brood mare band.

The American Quarter Horse is a breed developed for cattle work and short distance racing. Its background carries considerable Thoroughbred breeding from compact, short coupled individuals. The U.S. cattleman has stressed the breeding of animals having the ability, intelligence and aptitude to work cattle. The result is an animal with aptitude and easy training ability. Their instincts could be compared to a hunting dog's to hunting, with the exception being a horse's natural independent instincts.

Potential top cattle horses, which are a very important asset to a range cattle operation, would be produced from this foundation imported band. They would be a

real advantage as well as source of pride to their riders. The strong feeling good cowboys all over the world have for their horses is a real factor in keeping them willingly employed at a very demanding job. This will undoubtedly hold true in Malaysia as elsewhere.

5.4 Equipment

Cattle ranching does not require heavy investment in equipment when considering the acreage involved. With ranches generally being in remote areas, the service and repair of equipment is often difficult as well as expensive. It is advantageous to hold equipment to only that which is absolutely necessary.

In recommending necessary equipment this report assumes that land development and the construction of facilities will be contracted. Project equipment suggested for purchase, and shown in Exhibit 12, is considered necessary for operations and pasture maintenance. It covers equipment for pasture maintenance such as mowing, spot spraying, periodic plowing, harrowing and planting, etc. Also units to handle herd care such as trucking, spraying, etc.

An attempt is made to schedule equipment purchase with the herd and labor increase. It is recognized, however, that this purchase schedule will require flexibility to account for speed ups or delays in development. Equipment requirements are detailed in Section VII.

5.5 Labor

The program for hiring labor is also scheduled to progress with development. This program also requires flexibility.

Extensive help is not needed in a range cattle operation. The quality of help is generally far more important than the quantity. Depending on circumstances up to 1,000 head of cattle are at times run per employee. With Malaysia's available labor and the desirability of creating job opportunities, no attempt is necessary to approach such a ratio. This report, however, forecasts labor at an efficient rate for the purpose of indicating what can be expected. In actual practice it may prove advantageous from the overall

situation to operate in a manner which would utilize more labor.

Employees excluding management, will be needed to cowboy, operate equipment, perform general maintenance labor and staff the project office. No full time mechanic help is recommended.

The care and handling of the herd will be the critical job requiring the most in employee skill and training. More skill is necessary than generally imagined if the herd is to be kept under constant control and performing efficiently.

It appears necessary that for a number of years several experienced cowboys will have to be brought in, probably from the U.S., to aid management in caring for the herd and helping to train Malaysian counterparts. As soon as competent Malaysian personnel are trained in this area, these cowboys can be released. However, this should not be done prior to management's approval of the Malaysian cowboy's competence.

Equipment operators and general labor should be more readily available and can be given any necessary training on the job.

5.6 Smallholders Participation

An important factor, when considering labor, is the possibility that after development the project could be converted into an operation of small ranchers. This could be accomplished in several ways. One would be a system where the cattle would be retained by the project's owners and under their overall control. The pastures could be allocated to individuals, or families, who would maintain the land and facilities in their area and help to care for the cattle run in their pasture. They could be paid a salary plus an incentive bonus for calves produced or weight gain.

There are several methods by which this could be done. They would require study and the best selected if the overall theory is considered desirable. The main considerations would be extending participation while retaining the control necessary to maintain herd and pasture quality and production.

5.7 Management

Experienced and knowledgeable management will be a key to the project's success. It will be necessary that a management firm well backgrounded in all phases of development and operation in the cattle industry be hired to carry the responsibility until such time as Malaysian associates are trained to take over. This should probably cover management in its entirety during the development years. After Malaysian associates are in a position to take over it would be wise to retain the management firm on a consultant basis to assure the new management's receiving help and continued visits. This would also assure the project's management and owners keeping current on all new industry developments and information.

The proposed management contract envisions supplying a resident manager and foreman to be on the project full time. The project would engage qualified Malaysian associates for training in both positions. The management firm would also afford at least quarterly inspection and consultation trips by home office personnel and be in constant consultant contact with the project's owners and management.

The resident manager and foreman would be moved to the project the first year. Contract cost is based on the manager being on the project for eight years with the foreman through the sixth year. At this time the foreman's associate would be expected to take over. It is contemplated that the Malaysian associate manager would also take over major responsibility starting the seventh year with the management firm's manager remaining the seventh and eighth years in an advisory capacity. After the eighth year the contract is considered as going on a consultant basis.

The importance of qualified management cannot be over-emphasized. This project is virtually a new industry with its success hinging on efficient development, operation and training of Malaysian management and labor. Lack of emphasis in this area can spell failure in spite of its having so many promising aspects.

EXHIBIT 8
CATTLE BREEDS

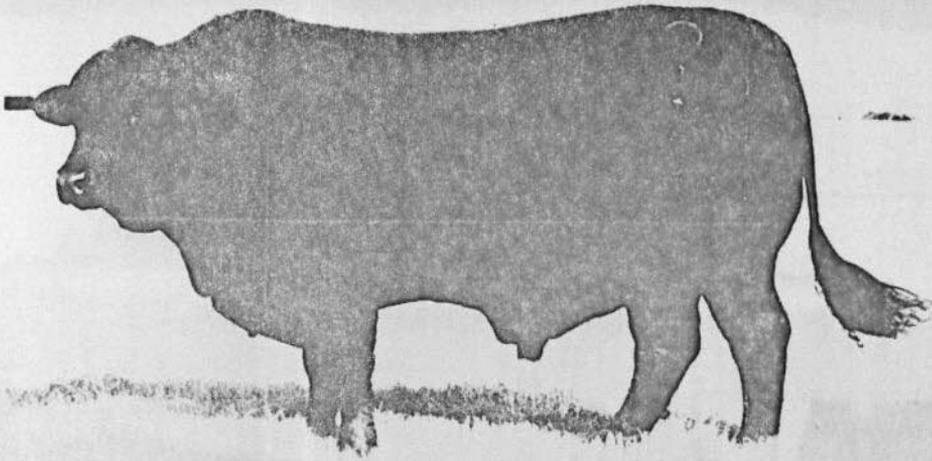
Native Cows

Note Small Size

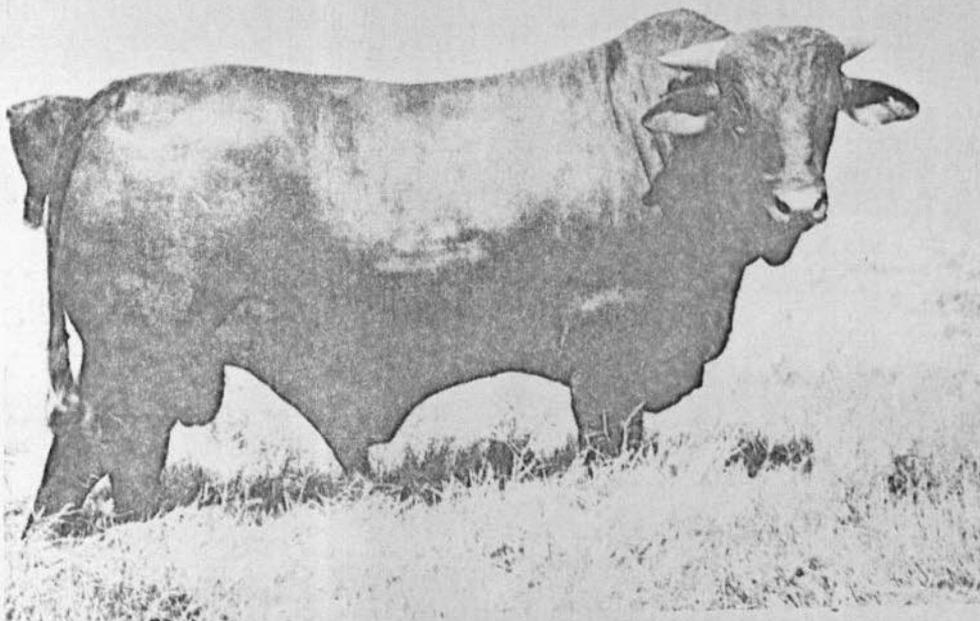


The photo below is a good
example of outstanding pure-
bred Brangus cows and calves



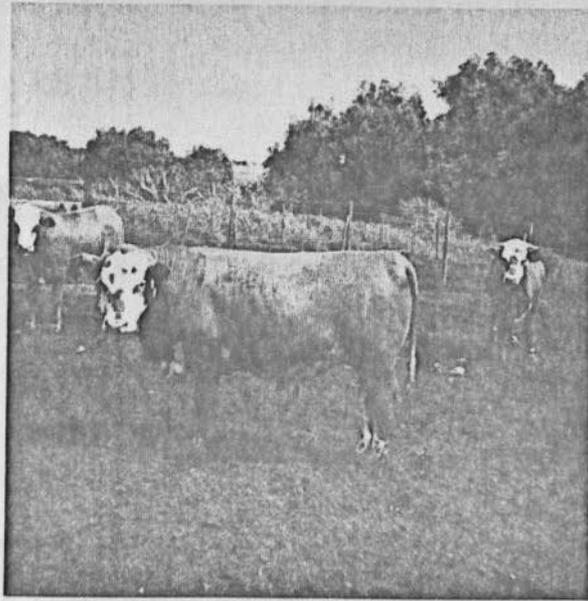


YEARLING BRANGUS BULL

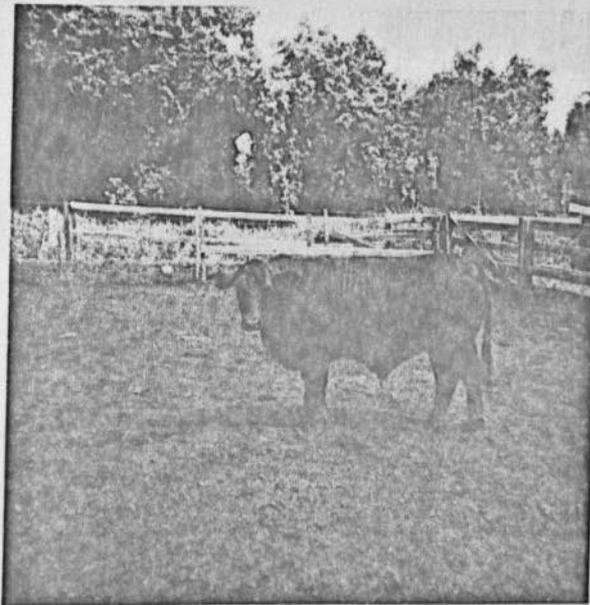


YEARLING SANTA GERTRUDIS BULL

EXHIBIT 9
FINISHED STEERS

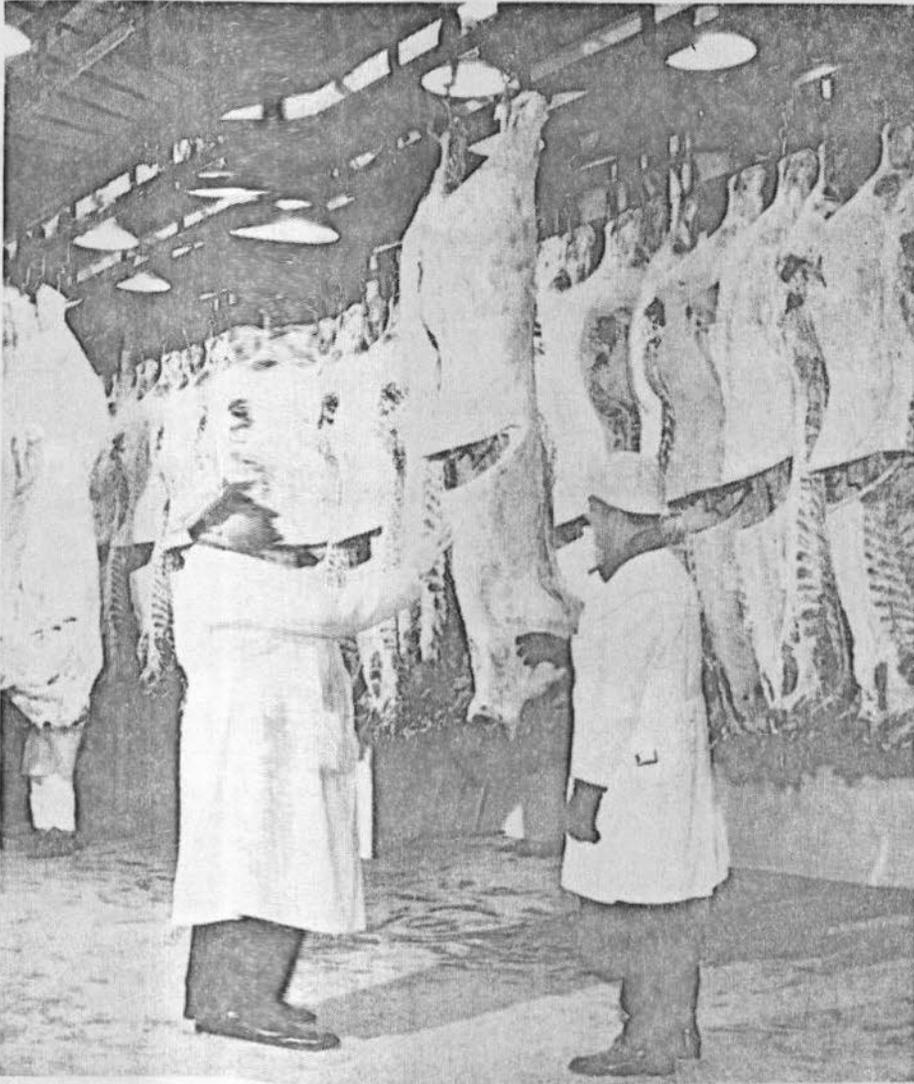


$\frac{3}{4}$ Hereford $\frac{1}{2}$ Santa Gertrudis steer
17 months old; 1,100 lbs. live weight



$\frac{1}{2}$ Angus $\frac{1}{4}$ Hereford $\frac{1}{2}$ Santa Gertrudis steer
17 months old; 1,100 lbs. live weight

Both of these animals were fattened on a ration
of 72% pineapple bran



U.S. Choice carcasses from steer typical of those shown on the previous page, finished on 72% pineapple bran

CATTLE SALES

VI. CATTLE SALES

For the foreseeable future slaughter cattle sales will undoubtedly be confined to grass fat cattle. If, however, economical feed sources such as pineapple bran and molasses, are developed in Malaysia feedlot fattening should be investigated. The U.S. Choice carcasses shown in this photo were from steers finished in a dry lot on a ration high in pineapple bran and molasses. (See photos in Exhibit 9 , following Section VI).

Cattle Feeding

Cattle feeding should only be considered if inexpensive sources of Malaysian produced feed become available. Ideal sources would be pineapple bran and molasses which when combined with protein, mineral and hormones can produce excellent gains.

If dry lot feeding of pineapple bran were attempted it should be in pens on a well drained site as near as possible to the area where the bran is produced. The bran is a light, bulky feed and it is considerably cheaper to haul the cattle to the feed than the feed to the cattle.

Initially cattle feeding would not be an attempt to produce highly finished beef comparable to the U.S. Choice grade. The program would be to feed to the equivalent of high U.S. Standard or low U.S. Good grade which would produce excellent carcass beef for the retail trade. Feeding to this stage is the most economical as bringing cattle to this degree of finish is when daily gains and conversion ratios are the most efficient.

Drylot feeding success would depend on the cost of the final feed ration and it's conversion ratio of feed to beef. A successful feeding program would be very desirable from the pineapple industry's standpoint. Advantages relating strictly to the cattle project would be:

1. Greater assurance of producing a market product of standard and assured quality due to finishing cattle at a younger age on a high energy feed.
2. Increased ability to market evenly twelve months in the year.
3. The ability to increase the ranch's brood herd and total

production through moving feeder cattle off of grass at an early age. This makes additional grass available to breeding and stock cattle. Total annual sales would be increased.

4. Having an inexpensive feed source for limited ranch use in supplementing energy and protein levels for feeder cattle as well as conditioning bulls for sale and ranch use.

A feeding project could easily be a cooperative venture between the pineapple canneries and the ranch. It would require no great capital expenditure for facilities and equipment. It is suggested that the establishment of a pineapple bran feed plant be considered concurrently with the ranching project.

To attempt to have the project's market steers sold on the beef market as anything but carcass beef to the retail trade does not appear practical at present. The degree and type of finish required for the hotel and restaurant trade is considerably higher than the retail beef market. Also this selective market is ordinarily interested in only loins and ribs from this type of beef. To supply them would mean fattening to a high degree and then breaking the carcasses to supply the ribs and loins. No Malaysian market is anticipated for some years that would absorb the remaining primal cuts from this quality beef at a return necessary to offset the expensive feeding costs.

Slaughtering Facilities

No consideration should be given at this stage to the project developing its own slaughtering and marketing facilities as it would not appear to be financially advantageous. The number of slaughter cattle produced by this project alone would not supply a modern, efficient packing plant. This is especially true when projecting the sale of so many cattle as breeding stock. The Malaysian government plans the construction of modern, centralized meat packing facilities. Reports indicate that the first is scheduled for Batu Tiga in the State of Selangor with completion hoped for prior to the end of 1971. This would be well in advance of project cattle reaching market and its use should be advantageous to both the project and the packing plant.

Markets

An effort should be made to market cattle ranch delivery

with the slaughter cattle being sold through a marketing agency. If possible it would be wise to have the carcass steer beef marketed under a brand name to identify this improved beef product with the project. To conform with Malaysian law restricting the slaughter of females, only steers, old bulls and cows culled for injury, age or disease would be marketed as beef. In time this law will undoubtedly be relaxed.

A prime market should develop for the sale of breeding cattle from the project and this market is not envisioned as being limited to Malaysia. Both from financial and industry development standpoints this market has major appeal. This report envisions the imported foundation cattle being excellent representatives of their breeds. No area in that part of the world, including Australia and New Zealand, would have a better opportunity than Malaysia with this project, to supply proven, top quality, acclimated breeding cattle for an expanding beef industry. This is definitely the most appealing basis for the project when considered from all standpoints. This includes the role of leadership Malaysia would afford in this very basic and important agricultural industry.

The development plan calls for castrating 50 percent of the bull calves from the foundation herds with the remaining 50 percent left unaltered. Replacement bulls for the brood herd would be selected from these raised bulls with the surplus being sold as long yearlings for breeding bulls.

Heifers not required for the project's brood herd, as well as cows culled for age, would be bred prior to their sale as brood stock. These heifers and cows, bred to top pure-bred bulls, should demand an excellent price and be readily saleable. They will afford an opportunity for others to engage in beef production with quality cattle at reasonable cost.

Total beef and brood cattle offered for sale by the project totaling about 5,200 annually upon full development, will be a new and improved product on the Malaysian market. This will necessitate that management and its associates do all possible to promote the products and educate potential buyers as to their value. The project should be promoted from its conception to encourage public interest and support.

VII. FINANCIAL FORECASTS

The forecasted financial results shown here are normal for a pioneering livestock development of this nature. The delayed operating profit and cash flow situations are the result of:

- o The length of time necessary to clear the area and establish pasture before full utilization.
- o The time lag from the point when developed areas are stocked with brood cattle until their offspring are marketed.
- o The substantial capital investment and extended period before maximum sales and income are realized.
- o The necessity during the herd build up period to allocate to the brood herd heifers which would normally be sold and generate income.

Financial benefits to be realized but not reflected in the profit and loss and cash flow are:

- o The development of a valuable herd of cattle from operating expense.
- o The appreciation of improved land values which should more than offset development costs.

It will be necessary to consider more than the financial aspects alone when evaluating the benefits to be derived from this project. Its benefit to the nation as a whole in pioneering a new and diversified agricultural industry will require emphasis. Also its importance in improving the general standard of living of the people.

7.1 Summary

The project appears economically favorable although somewhat extended as to period to produce returns.

Major financial events are as follows:

	<u>1st Occurance</u>		<u>Stabilized or Final</u>	
	<u>Yr.</u>	<u>Amount</u>	<u>Yr.</u>	<u>Amount</u>
Revenue	5	820,000	16	5,180,900
Profit Before Interest				
& Taxes	8	1,074,242	24	2,831,761
" After " "	9	180,696	22	1,557,467
Investment-Equity	1	5,000,000	2	10,000,000
" Debt	2	1,030,195	7	18,718,331

It was assumed that all cash generated by the project went to pay interest and principal and no cash accumulated. The first payments for these items occurred in years 6 and 8 respectively. Debt reached the maximum of M\$18,718,331 in year 7 and was retired in year 21.

Total capital requirements reach a peak of M\$28,718,331 in year 7 and are made up as follows:

Operational Losses	13,557,117
(Less) Depreciation (non-cash)	(10,028,048)
Capital Expenditures	18,989,859
Interest Paid	<u>6,199,403</u>
	28,718,331

It must be recognized, of course, that the heavy inputs of capital and absence of profits for an extended period is the results of funds going to produce an inventory of breeding cattle which are not sold and consequently do not produce income. The value of this asset and the improvement of the land is substantial. For example, at year 16:

Cattle Inventory	14,474,750
Land Improvements	<u>11,032,500</u>
Total	25,507,250

7.2 Basic Assumptions and Data Used in Forecasts

Following are the basic assumptions and key statistical and operational data used in arriving at the financial forecasts.

Exhibit 11 provides detail of project Operating Expenses. A breakdown of Capital Expenditures is presented in Exhibits 11 and 12.

Also included in this section are schedules showing the build-up of the breeding herd (Exhibit 13), a yearly valuation of the cattle inventory (Exhibit 14), and detail of cattle sales revenue (Exhibit 15).

This key data is presented in considerable detail, and serves as a statistical summary of the key elements of the project.

(Exhibits 10, 11, 12, 13, 14 and 15 follow)

DETAIL - OPERATING EXPENSE

PASTURE MAINTENANCE\$/Acre

Fertilizer:	<u>lbs/ac</u>			
	20	N		
	50	P		
	<u>20</u>	K		
	90		@ \$0.35/lb	31.50
Herbicide:	<u>Gal/ac</u>			
	.01	2,4-D	@ \$13.50/gal = \$0.14	
	<u>.01</u>	2,4,5-T	@ <u>\$34.17/gal</u> - <u>\$0.34</u>	
	.02		@ \$23.83/gal - \$0.48/ac	<u>.48</u>
			Total	31.98

Note: Application Expense included in
ranch personnel and equipment
repair and maintenance

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CATTLE OPERATIONS

Cattle Handling:		
Veterinary, Dipping, Spraying, etc.		\$10/HD/Yr.
Supplemental Feeding:		
Minerals - 0.05 lbs/AU/day @ \$0.20/lb		\$ 3.65/AU/Yr.
Feed - 2 lbs/hd/day @ \$0.15/lb		\$109.50/HD/Yr.
Excluding Cows & Calves		

See following page for yearly cost build-up

PROJECT YEAR	TOTAL HEAD	TOTAL AU	TOTAL HEAD EXCLUDING COWS & CALVES	VET, ETC. @ \$10 PER HEAD PER YEAR	MINERALS, @ \$3.65 PER AU PER YEAR	FEED @ \$109.50 PER HEAD PER YEAR	TOTAL \$
1							
2	2,810	2,810	210	28,100	10,257	22,995	61,352
3	6,964	5,307	206	69,640	19,371	22,557	111,568
4	12,691	8,709	2,368	126,910	31,788	259,296	417,994
5	17,132	11,121	5,143	171,320	40,592	563,159	775,071
6	19,715	12,882	7,690	197,150	47,019	842,055	1,086,224
7	20,687	13,836	8,662	206,870	50,501	948,489	1,205,860
8	20,670	13,819	8,645	206,700	50,439	946,628	1,203,767
9	20,634	13,783	8,609	206,340	50,308	942,686	1,199,334
10	20,600	13,749	8,575	206,000	50,184	938,963	1,195,147
11	20,616	13,765	8,591	206,160	50,242	940,715	1,197,117
12	20,618	13,767	8,593	206,180	50,250	940,934	1,197,364
13	20,548	13,697	8,523	205,480	49,994	933,269	1,188,743
14	20,525	13,674	8,500	205,250	49,910	930,750	1,185,910
15	<u>20,503</u>	<u>13,652</u>	<u>8,478</u>	<u>205,030</u>	<u>49,830</u>	<u>928,341</u>	<u>1,183,201</u>
	244,713	164,571	92,793	2,447,130	600,685	10,160,837	13,208,652

Note: Labor and equipment expense included in ranch personnel and equipment repair and maintenance.

RANCH PERSONNEL

	<u>NO.</u>	<u>COMPENSATION</u>	<u>PROJECT YEAR</u>
Manager - U.S.	1	Incl. in	1
Foreman - U.S.	1	management	2
		contract	
Associate Manager - Malay	1	24,000	1
Associate Foreman - Malay	1	14,400	2
Office Manager - Malay	1	15,000	2
Cowboys - U.S.	5	75,000	2
Cowboys & Equip.			
Operator - Malay	12	29,952	1,2&3
50¢/hr. Laborers - Malay	12	14,976	2,3&4
48 hr.wk.			
48 hr.wk.	34	173,328	

<u>PROJECT YEAR</u>	<u>ASSOCIATE MGR.</u>	<u>FOREMAN</u>	<u>OFFICE MANAGER</u>	<u>U.S. COWBOYS</u>	<u>MALAY COWBOY & EQUIP. OPERATOR</u>	<u>MALAY LABORERS</u>	<u>TOTAL</u>
1	24,000				10,000		34,000
2	24,000	14,400	15,000	125,000	20,000	5,000	203,400
3	24,000	14,400	15,000	125,000	30,000	10,000	218,400
4	24,000	14,400	15,000	125,000	30,000	15,000	223,400
5	24,000	14,400	15,000	125,000	30,000	15,000	223,400
6	24,000	14,400	15,000		30,000	15,000	98,400
7	24,000	14,400	15,000		30,000	15,000	98,400
8	24,000	14,400	15,000		30,000	15,000	173,400
9	24,000	14,400	15,000		30,000	15,000	98,400
10	24,000	14,400	15,000		30,000	15,000	98,400
11	24,000	14,400	15,000		30,000	15,000	98,400
12	24,000	14,400	15,000		30,000	15,000	98,400
13	24,000	14,400	15,000		30,000	15,000	98,400
14	24,000	14,400	15,000		30,000	15,000	98,400
15	24,000	14,400	15,000		30,000	15,000	98,400
TOTAL	360,000	201,600	210,000	500,000	420,000	195,000	1,886,600

EQUIPMENT REPAIR & MAINTENANCE

	<u>YEAR</u>	<u>NO. UNITS</u>	<u>EOH PER YEAR</u>	<u>R&M RATE</u>	<u>R&M \$ PER YEAR</u>
Diesel, wheel tractor	1	1	1,500	6	9,000
Front end loader	1	1			500
Post hole digger	1	1			100
Rotary mower	1	1			750
Spray attachment	1	1			500
Fertilizer spreader	1	1	500	3	1,500
Portable generator	1	1	500	3	1,500
Portable air compressor	1	1	1,000	3	3,000
Land Rover	1	1	3,000	3	9,000
Pickups	1	3	1,000	6	6,000
7 ton truck w/cattle body	1	1	1,000		500
Tank trailer 1,000 gal	1	1			100
Tank trailer 200 gal	1	1			200
Horse trailer	1	2			100
Dump trailer	1	1			100
Sub-total					<u>33,000</u>
Land Rover	2	1	1,000	3	3,000
Pickups	2	3	3,000	3	9,000
Sub-total					<u>12,000</u>
D4 type tractor	3	1	1,500	10	15,000
Diesel wheel tractor	3	1	1,500	5	7,500
Disc plow	3	1			250
Disc harrow	3	1			250
Rotary mower	3	1			750
Spray attachment	3	1			500
Fertilizer spreader	3	1			250
7 ton truck w/cattle body	3	1	1,000	6	6,000
Sub-total					<u>30,500</u>

<u>Year</u>	<u>R&M \$per Year</u>
1	33,000
2	45,000
3	75,500
etc.	75,500

GENERAL ADMINISTRATIVE

Management Contract:

Year 1-6	65,000 US\$
7-8	53,000 US\$
9 on	20,000 US\$

Other Expenses:

50,000

Domestic Help, Directors Fees,
Operating Supplies, Professional
Services, Legal Fees, Audit Fees,
etc.

<u>Year</u>	<u>M\$</u>
1-6	245,000
7-8	209,000
9 on	110,000

EMPLOYEE BENEFITS

Payroll Taxes, Vacations, Holidays,
Medical, Housing, etc.

25,000

SUMMARY - CAPITAL EXPENDITURES , EXHIBIT II

PROJECT YEAR	LIVESTOCK PURCHASED	LAND CLEARING	PASTURE ESTABLISHMENT	FENCING & CORRALS	AGRI-CULTURAL EQUIPMENT	AUTO-MOTIVE EQUIPMENT	OFFICE EQUIPMENT	BLDGS & RELATED FACIL.	MISC.	TOTAL
1	-	1,680,000	930,000	63,375	37,477	84,500	2,300	157,000	23,000	2,977,652
2	4,056,000	1,680,000	930,000	63,375	-	51,000	500	67,500	13,000	6,861,375
3	1,800,000	1,680,000	930,000	63,375	95,582	20,000	-	69,000	13,000	4,670,957
4	1,800,000	1,680,000	930,000	56,875	-	-	-	-	13,000	4,479,875
5	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-
TOTAL	7,656,000	6,720,000	3,720,000	247,000	133,059	155,500	2,800	293,500	62,000	18,989,859

DETAIL - CAPITAL EXPENDITURES

	NO. UNITS	UNIT PRICE	AMOUNT	YEAR	DEPREC. LIFE
<u>LIVESTOCK PURCHASED</u>					
U.S. Imports					
Heifers	600	2,625	1,575,000	2	6
Bulls	210	2,925	614,250	2	5
Mares	10	2,925	29,250	2	10
Sub-total	820		2,218,500		
Native Cattle					
Cows	2,000	900	1,800,000	2	6
	2,000	900	1,800,000	3	6
Sub-total	2,000	900	1,800,000	4	6
	6,000		5,400,000		
Australian Horses	50	750	37,500	2	10
Sub-total	50		37,500		
Total	6,870		7,656,000		
<u>LAND CLEARING</u>					
	24,000 Ac.	280	6,720,000	1-4	20
Note: Detail of	unit price shown on last page of this Exhibit				
<u>STUR</u>					
<u>ESTABLISHMENT</u>					
	24,000 Ac.	155	3,720,000	1-4	20
Note: Detail of	unit price shown on last page of this Exhibit				
<u>FENCING & CORRALS</u>					
Fence	155 Mi.	1,300	201,500	1-4	20
Corrals	7	6,500	45,500	1-4	20
Total			247,000		

	NO. UNITS	UNIT PRICE	AMOUNT	YEAR	DEPREC. LIFE
<u>AGRICULTURAL EQUIPMENT</u>					
D-4 type tractor	1		66,100	3	10
Diesel wheel tractor	1		14,700	1	10
Diesel wheel tractor	1		12,162	3	10
Implements:					
Disc Plow	1		2,530	3	10
Disc Harrow	1		5,000	3	10
Front End Loader			7,495	1	10
Post Hole Digger	1		1,492	1	10
Rotary Mower	2	4,790	9,580	1&3	10
Spray Attachment	2	3,000	6,000	1&3	10
Fertilizer Spreader	2	2,000	4,000	1&3	10
Portable Generator	1		2,000	1	10
Portable Air Comp.	1		2,000	1	10
Total			133,059		
<u>AUTOMOTIVE EQUIPMENT</u>					
Land Rovers	2	12,000	24,000	1&2	5
Pickups	6	13,000	78,000	1&2	5
7 ton truck w/cattle body	2	20,000	40,000	1&3	5
Tank trailer 1,000 gal	1		7,500	1	5
Tank trailer 200 gal	1		1,500	1	5
Horse trailer	2	1,000	2,000	1	5
Dump trailer	1		2,500	1	5
Total			155,500		
<u>OFFICE EQUIPMENT</u>					
Adding Machine	1		300	1	10
Calculator	1		2,000	1	10
Office Furniture			500	2	20
Total			2,800		
<u>BUILDINGS & RELATED FACILITIES</u>					
Dwellings	12	15,000	180,000	1-3	20
Office Building	1		7,500	2	20
Utility Bldg. 30'x100'	2	9,000	18,000	1-3	20
Domestic Water system	1		60,000	1	20
Power generating "	1		25,000	1	20
Tank & Pump-diesel fuel	1		3,000	1	20
Total			293,500		

	<u>NO. UNITS</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>	<u>YEAR</u>	<u>DEPREC. LIFE</u>
<u>MISCELLANEOUS</u>					
Feed Stations	52	1,000	52,000	1-4	10
Hand Tools, etc			<u>10,000</u>	1	10
Total			<u>62,000</u>		
TOTAL CAPITAL EXPENDITURES			<u><u>18,989,859</u></u>		

	<u>NO. UNITS</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>	<u>YEAR</u>	<u>DEPREC. LIFE</u>
<u>LAND CLEARING</u>	24,000 Ac.	280	6,720,000	1-4	20

Based on tractors
Malaysia's experience at
Bukit Garam as follows:

	<u>\$per acre</u>
Felling and De-	
stumping	109.90
Stacking	100.10
Restacking	30.80
Harrowing	<u>37.55</u>
Total	278.35
Use	280

PASTURE ESTABLISHMENT

24,000 Ac.	155	3,720,000	1-4	20
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Preparation:	<u>\$per Acre</u>	<u>Use</u>
Harrowing 0.3 hrs/ac @36.45/hr =	10.94	10

Fertilizing:			
Material - <u>lbs/ac</u>			
100 N			
150 P			
50 K			
<u>300</u>	@ \$0.35/lb =	105.00	
	- 0.25 hr/ac @\$15.00/hr =	<u>3.75</u>	
		108.75	110

Planting:			
Mower - 0.17 hrs/ac @\$20.00/hr =		.34	
x 0.1 (1 ac seed - 10 ac planted)			
Loading & Spreading			
6 men @\$0.50/hr x 0.8 hrs/ac =		2.40	
Truck @\$10/hr x 0.8 hrs/ac =		8.00	
Harrowing - 0.3 hrs/ac @\$20.00/hr =		<u>6.00</u>	
		16.74	16

Legume Seeding:			5
Contingency 10%			<u>14</u>
	Total		155

PROJECT YEAR	HERD BULLS	BROOD COWS	CALVES AT SIDE	YEARLINGS	2 YEAR OLDS	TOTAL HERD	ANIMAL UNITS	ACRES IN PASTURE	ACRES PER ANIMAL UNIT
1									
2	210	2,600	-	-	-	2,810	2,810	6,000	4.3
3	206	4,548	2,210	-	-	6,964	5,307	12,000	4.3
4	202	6,457	3,866	2,166	-	12,691	8,709	18,000	2.8
5	203	6,500	5,489	3,789	1,151	17,132	11,121	24,000	2.2
6	203	6,500	5,525	5,379	2,108	19,715	12,882	24,000	1.9
7	203	6,500	5,525	5,414	3,045	20,687	13,836	24,000	1.7
8	203	6,500	5,525	5,414	3,028	20,670	13,819	24,000	1.7
9	203	6,500	5,525	5,414	2,992	20,634	13,783	24,000	1.7
10	203	6,500	5,525	5,414	2,958	20,600	13,749	24,000	1.7
11	203	6,500	5,525	5,414	2,974	20,616	13,765	24,000	1.7
12	203	6,500	5,525	5,414	2,976	20,618	13,767	24,000	1.7
13	203	6,500	5,525	5,414	2,906	20,548	13,697	24,000	1.7
14	203	6,500	5,525	5,414	2,883	20,525	13,674	24,000	1.7
15	203	6,500	5,525	5,414	2,861	20,503	13,652	24,000	1.7
16 on	203	6,500	5,525	5,414	3,584	21,226	14,375	24,000	1.7

ASSUMPTIONS:

Calving Percentage	Foundation Herd	Commercial Herd
Replacement Heifer Percentage	85	85
Replacement Bull Percentage	40	40
Death Loss Percentage	25	-
Animal Units:	2	2
Calf	$\frac{1}{4}$	$\frac{1}{4}$
Yearling	$\frac{1}{2}$	$\frac{1}{2}$
All Other	1	1
Cow to Bull Ratio	40-1 $\frac{1}{4}$	40-1 $\frac{1}{4}$ factor (.03125)

HERD VALUATION

EXHIBIT 14

DOLLAR VALUE

<u>PROJECT YEAR</u>	<u>HERD BULLS</u>	<u>BROOD COWS</u>	<u>CALVES AT SIDE</u>	<u>YEARLINGS</u>	<u>2 YEAR OLDS</u>	<u>TOTAL</u>
1	-	-	-	-	-	-
2	315,000	2,400,000	-	-	-	2,715,000
3	309,000	4,152,000	374,000	-	-	4,835,000
4	303,000	5,868,900	638,560	1,087,200	-	7,897,660
5	304,500	5,926,000	897,840	1,815,650	863,015	9,807,005
6	304,500	5,943,700	909,840	2,528,550	1,572,620	11,259,210
7	304,500	5,960,600	915,840	2,578,550	2,267,355	12,026,845
8	304,500	5,953,200	921,600	2,611,800	2,257,670	12,048,770
9	304,500	5,951,700	919,080	2,643,350	2,233,710	12,052,340
10	304,500	5,985,800	918,560	2,629,750	2,211,170	12,049,780
11	304,500	5,997,200	930,160	2,627,050	2,221,880	12,080,790
12	304,500	6,008,300	934,040	2,690,950	2,223,100	12,160,890
13	304,500	6,030,600	937,840	2,712,500	2,176,550	12,161,990
14	304,500	6,050,200	945,400	2,733,250	2,161,295	12,194,645
15	304,500	6,067,300	952,080	2,774,700	2,146,725	12,245,305
16 on	304,500	6,500,000	1,105,000	3,568,500	2,996,750	14,474,750

CATTLE SALES

EXHIBIT 15

PROJECT YEAR	CULL BULLS	BRED		BREEDING BULLS	STEERS	GEN BRED		TOTAL
		FOUNDATION	COMMERCIAL			HEIFERS		
NO. OF HEAD								
1	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-
5	-	-	676	118	-	-	-	794
6	21	-	1,355	95	939	212		2,622
7	21	-	1,978	93	1,737	371		4,200
8	84	300	1,692	67	2,518	527		5,188
9	84	300	1,692	103	2,497	531		5,207
10	34	300	1,992	188	2,461	531		5,206
11	34	196	1,796	172	2,427	531		5,156
12	34	192	1,800	170	2,443	531		5,170
13	34	188	1,804	239	2,415	531		5,214
14	34	248	1,744	262	2,375	531		5,194
15	34	306	1,686	285	2,352	531		5,194
16 and on	34		929	625	1,990	1,594		5,172

PRICE PER HEAD (M\$)

Year 1-15	\$850	@\$1,000	@\$ 900	@\$1,800	@\$ 850	@\$ 900
Year 16 on	850	1,000	1,000	1,500	850	1,000

REVENUE

1	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	608,400	212,400	-	-	820,000
6	17,850	-	1,219,500	171,000	798,000	190,800	2,397,300
7	17,850	-	1,780,200	167,400	1,476,450	333,900	3,775,800
8	71,400	300,000	1,522,800	120,600	2,140,300	474,300	4,629,400
9	71,400	300,000	1,522,800	185,400	2,122,450	477,900	4,679,950
10	28,900	300,000	1,792,800	338,400	2,091,850	477,900	4,729,850
11	28,900	196,000	1,616,400	309,600	2,062,950	477,900	4,691,750
12	28,900	192,000	1,620,000	306,000	2,076,550	477,900	4,701,350
13	28,900	188,000	1,623,600	430,200	2,078,250	477,900	4,826,850
14	28,900	248,000	1,569,600	471,600	2,018,750	477,900	4,814,750
15	28,900	306,000	1,517,400	513,000	1,999,200	477,900	4,842,400
16 and on	28,900		929,000	937,500	1,691,500	1,594,000	5,180,900

FINANCIAL FORECASTS

7.3 Financial Statements

This section includes the following financial statements:

Estimated Profit and Loss - Exhibit 16
Estimated Cash Flow - Exhibit 17

Comments on Financial Statements:

1. Profit and Loss (Exhibit 16)

It is assumed that the land will be made available through the Pahang State Development Corporation on long-term lease, in exchange for stock in the Cattle Company, at no cost to the company. Therefore, no land purchase or rental costs are projected.

Income from the project begins in year 5 with the operation showing a profit in year 9 of M\$180,696.

1. It was assumed that the project would have a five year tax-free pioneer status beginning with the first year a profit was shown viz: year 9.
2. It was assumed there would be no import duties on imported cattle, equipment, material and supplies.

Profits steadily increase through year 13, decrease in year 14 due to tax payments and then steadily increase to year 22 where they stabilize at approximately 1.6 million.

2. Cash Flow (Exhibit 17)

Source of funds for the project was assumed to be M\$10,000,000 from subscribed stock and series of loans totaling M\$18,718,331 by year 7. The 10,000,000 in equity capital would be contributed by the State and Federal Governments and other sources.

Interest on the loan was assumed at 8%. Through year 5 no cash is generated by the project and additional borrowings are required to meet interest payments. The first interest payment from project generated funds occurs in year 6 and the first payment on the loan principal in year 8. The debt is retired in year 21.

EXHIBIT 17

ESTIMATED CASH FLOW, M\$
(000 M\$)
to nearest thousands

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PROFIT (LOSS) AFTER INCOME TAXES - Schedule 1	502	(1,859)	(31,045)	(4,619)	(4,561)	(3,265)	(1,845)	(358)	(181)	631	699	827	1,105	656	729	932
STOCK SUB- SCRIBED	5,000	5,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEPRECIATION	165	1,005	1,457	1,892	1,892	1,875	1,742	1,175	875	575	569	561	550	549	549	549
TOTAL ADD- ITIONS	5,165	6,005	1,457	1,892	1,892	1,875	1,742	1,175	875	575	569	561	550	549	549	549
CAPITAL EXPEND- ITURES	2,978	6,861	4,671	4,489	-	-	-	-	-	-	-	-	-	-	-	-
PAYMENT ON BORROWINGS	-	-	-	-	-	-	-	818	1,056	1,207	1,268	1,389	1,655	1,205	1,278	1,481
TOTAL DED- UCTION	2,978	6,861	4,671	4,480	-	-	-	818	1,056	1,207	1,268	1,389	1,655	1,205	1,278	1,481
CASH FLOW-NET	1,685	(2,715)	(6,318)	(7,207)	(2,669)	(1,390)	(1,034)	-	-	-	-	-	-	-	-	-
CUMMULATIVE CASH FLOW	1,685	(1,030)	(7,348)	(14,556)	(17,225)	(18,615)	(18,718)	-	-	-	-	-	-	-	-	-
OUTSTANDING LONG-TERM DEBT	-	1,030	7,348	14,556	17,225	18,615	18,718	17,901	16,844	15,638	14,370	12,981	11,326	10,120	8,842	7,371

EXHIBIT 17

ESTIMATED CASH FLOW, M\$
(000 M\$)
to nearest thousands

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PROFIT (LOSS) AFTER INCOME TAXES - Schedule 1	502	(1,859)	(31,045)	(4,619)	(4,561)	(3,265)	(1,845)	(358)	(181)	631	699	827	1,105	656	729	932
STOCK SUB- SCRIBED	5,000	5,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEPRECIATION	165	1,005	1,457	1,892	1,892	1,875	1,742	1,175	875	575	569	561	550	549	549	549
TOTAL ADD- ITIONS	5,165	6,005	1,457	1,892	1,892	1,875	1,742	1,175	875	575	569	561	550	549	549	549
CAPITAL EXPEND- ITURES	2,978	6,861	4,671	4,489	-	-	-	-	-	-	-	-	-	-	-	-
PAYMENT ON BORROWINGS	-	-	-	-	-	-	-	818	1,056	1,207	1,268	1,389	1,655	1,205	1,278	1,481
TOTAL DED- UCTION	2,978	6,861	4,671	4,480	-	-	-	818	1,056	1,207	1,268	1,389	1,655	1,205	1,278	1,481
CASH FLOW-NET	1,685	(2,715)	(6,318)	(7,207)	(2,669)	(1,390)	(1,034)	-	-	-	-	-	-	-	-	-
CUMMULATIVE CASH FLOW	1,685	(1,030)	(7,348)	(14,556)	(17,225)	(18,615)	(18,718)	-	-	-	-	-	-	-	-	-
OUTSTANDING LONG-TERM DEBT	-	1,030	7,348	14,556	17,225	18,615	18,718	17,901	16,844	15,638	14,370	12,981	11,326	10,120	8,842	7,371

