

REPORT ON FIELD TRIP TO FAZENDA AGRO-PECUÁRIA DO  
CRAVARI, S.A., STATE OF MATO GROSSO<sup>1</sup>

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RESUMO

This fazenda which covers about 136,730 ha (341,800 acres) is located approximately at 21°20' Lat. S., and 58° Longitude (see map). Most of the area lies between the Cravari River on the east and the Honorato River on the west but it extends a short distance beyond each of these rivers. It is about 500 km (300 miles NNW of Cuiaba a sizeable city and the capital of the State of Mato Grosso. By highway and trail it is about 700 km (420 miles) from Cuiaba.

The fazenda is in the southern headwaters region of the Amazon River basin. All of the rivers in this part of the basin follow northerly courses to empty into the Amazon River through the Sangue-Juruena-Tapajós River system.

The entire region north of E-W highway BR-29 (approx. Lat. 15° S.) is practically untouched as far as any developments are concerned. It is all in heavy virgin equatorial forest with patchy inclusions of cerrado, a very short open scrubby forest. In the forest and cerrado east of the area and for several hundred kilometers beyond practically the only inhabitants at present are a relatively small number of native Indians. Most of the region is nearly level or gently undulating with some poorly drained nearly level areas along the lower reaches of the larger streams. The elevations range from about 250 to approximately 350 meters (approx. 850 to 1150 feet).

According to the fazenda operators the region has marked wet and dry seasons, with October through March being

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<sup>1</sup> Accepted for publication July 17, 1969.

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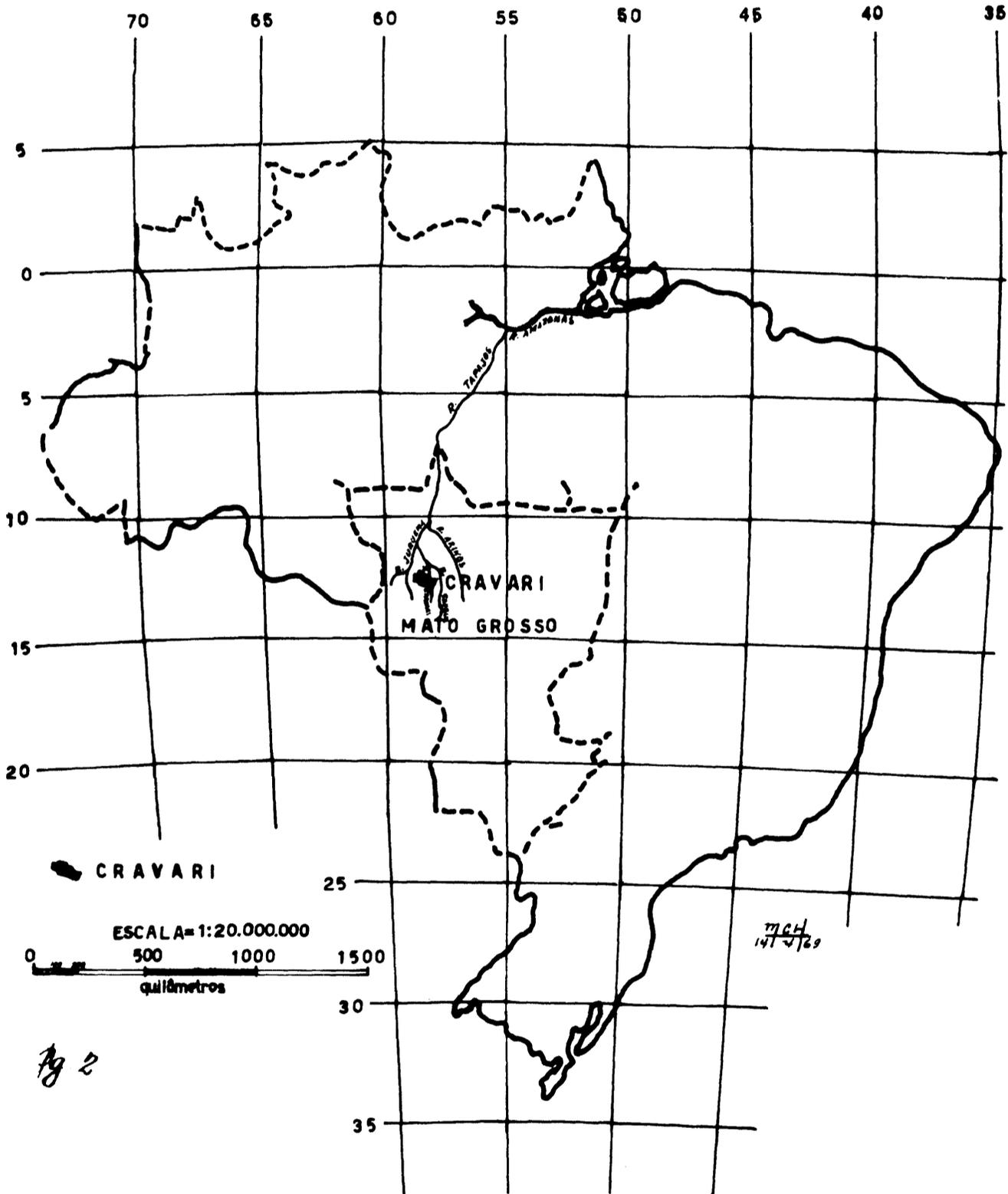


Fig 2

the wet months. About 220 cm of rain falls during this period. May through August are dry months with very little if any rain.

According to the SUDAN program (Federal Law n<sup>o</sup> 4771 November 15, 1965) the stipulation is that in development of land in this part of the country and north of Latitude 14<sup>o</sup>, 50% of the area must remain in forest. Another stipulation is that to qualify for permanent title to a claim the operators must complete the development of the other 50% within a period of 10 years.

Clearing of forest and seeding of grass at Cravari were initiated in 1967. To date about 6835 (approx. 17,000 acres) have been cleared and about a half of this is now in grass. Clearing so far has been done manually and is a laborious operation. The forest is a dense entangled stand of trees, heavy vines and smaller woody and non-woody plants, so it is almost impenetrable. All of this material has been cut by hand, the trees a meter or so above ground, and the entire debris was allowed to dry partially and then burned. Partially burned remnants of the material are still an impediment to easy accessibility but grass has been seeded and from appearances reasonably good stands have been obtained. The establishment of grass is done by either seeding or planting of clones, both placed in the soil by hand using a small hoe to open up the soil. While clearing to date has been done manually the operators are planning to try mechanical means.

Four grasses, common as pasture species in other parts of Brazil, have been tried so far and from the stands obtained all appear to be doing well. These four grasses are:

- Colonião - *Panicum maximum*
- Jaraguá - *Hyparrhenia rufa*
- Gordura - *Melinis minutiflora*
- Napier (Elephant Grass) - *Pennisetum purpureum*

According to general experience elsewhere Colonião is one of the more desirable species but requires somewhat more fertile soils than do others. Where the seedings were made in 1967 the stands range from about a meter to about 2 1/2 meters in height. The density however is more erratic due to the presence of partially burned debris which may have prevented more uniform seeding. It is the opinion of the operators that all of this debris will disappear in a few years by rotting and decomposition. Clearing, burning and seeding is being continued.

The main agricultural pursuit on the fazenda will be beef cattle production. The other crops, fruits and vegetables grown or to be grown will be used as food for the fazenda personnel and feed for the cattle. Upland rice and manioc appear to be doing well, the planting of others has just been started. A little corn has been planted here and there in the partially cleared areas but the stands are sparse and the plants are not doing too well.

Currently there are about 1000 head of cattle on the fazenda and the plans are to bring in about another 4000 this year and to increase the herd to 67,000 head by end of 10 years period. The ultimate goal is to market about 12,000 head annually. Most of the cattle so far have been purchased in the pantanal, the big marshy region south of Cuiabá, and brought in by truck over a trail through the forest opened recently north from the east-west highway BR-29. This is about 330 km (200 miles) to the south of the fazenda. Surface transport is difficult and expensive taking several days often because of the poor condition of the trail which is passable only during the dry periods. According to the operators the cost of transporting these cattle to Cravari has exceeded the original purchase price. The trucks carry only about a half load since the trail is not in shape for heavy traffic. There are many stretches of sandy soil, numerous chuck holes or wet areas and primitive bridges across rivers.

In addition to indigenous labor on the fazenda there are 10 families from the "outside". Two-way radio contacts with São Paulo can be made daily and also a 4 passenger Cessna plane is owned and operated by the fazenda. Currently there is an airstrip about 10 km (6 miles) from the fazenda headquarters but one adjoining is under construction. The flight to Cuiabá takes about 2 hours. The availability of this air transport has made it possible to maintain close contact with Cuiabá and also to deal with whatever emergencies may arise that need help from outside.

The Cravari fazenda is pioneering in development operations in the area. A young agronomist is in charge of the field operations. Several neighboring holdings have likewise initiated some developments such as construction of an airstrip or some primary housing facilities. It is understood that there is very little if any of the region that has been left unclaimed by various interests for such development. Since certain minimum developments have to be accomplished within a set period of time to qualify for retention of the claim it is anticipated

that there will be a considerable increase in activity in the region. The soils are acid and on basis of the limited field examinations conducted are likely quite low in fertility. There are a few limited tracts of clayey red latosols which are also acid and probably low in fertility but may be somewhat more desirable because of greater capacity for moisture retention. According to a recent, 1966, very general soils map (scale..... 1:5,000,000) for northern, central and western Brazil, the soils found on the fazenda are quite extensive in the region. This map was prepared almost entirely by interpretation of aerial photographs and on basis of the general information on such other factors as geology, vegetation and climate. It is anticipated that these are the predominant soils in at least the Sangué-Juruena basin which is about 4,000,000 ha (10,000,000 acres) in extent. No actual work on the ground has been done previously on soils of the region. During the field trip to the fazenda a number of soils were examined, described, and sampled and a report on these will be prepared separately. It is hoped that a number of pertinent analyses of these samples can be conducted also. Additional information on vegetation, topography and relief has also been assembled which will be included with the report on soils. While the inherent fertility is probably low appropriate fertilization should make these soils productive. It is felt that they have considerable potential especially for grass production with proper treatments and management.

The Cravari fazenda is the first to start actual development operation in this large region of virgin land. The experience and results obtained of this undertaking will be of great value to the development of successful agriculture throughout this region. This is especially pertinent in regards to appropriate management and treatment of the soils, to obtaining weather data, to establishment and maintenance of desirable grass and to provision of adequate feed during the dry season. Little is known about the suitability of the introduced grasses in this new region nor of their relative nutritive merits under these conditions. Information regarding production of subsistence food crops for personnel and of feed for cattle is also needed. It is very likely too that to remain productive these soils will need appreciable additions periodically of plant nutrients including trace elements. What and how much should be applied and when and how this should be done are of overriding importance. The question of management of the large quantities of the coarse residues of the grass vegetation left after grazing is likewise quite important. It does present a fire hazard during the dry season and secondly, is burning a desirable practise for disposing of the coarse trash left untouched

by the cattle? Another very important problem is that of most effective utilization and conservation of soil moisture especially during the dry season. These are but a few of the many problems that will need to be resolved if effective agricultural production is to be realized and maintained throughout the region.

In addition to these problems of production technology several others will also need attention. Among the latter are:

1. Availability of water for cattle and domestic use
2. Appropriate surface transport facilities into and within the area
3. Suitable outlets for the products of agriculture
4. Information on costs of operations starting with such items as cost of clearing forest and preparation of land
5. Provision of social facilities pertaining to education, health, etc to people moving into the area.

There is no question but that nitrogen will be one of the plant nutrients that will be needed in great quantity throughout the region. As it happens, this region is so situated that there is much potential hydro-power along its southern border that could be utilized for production of nitrogenous fertilizer. A well expressed escarpment constitutes the border between the region and the Serra dos Parecís upland to the south. Many of the larger north flowing rivers of the Juruena-Sangue system originate in this extensive upland to descend the escarpment zone through rapids and waterfalls, Two such waterfalls were seen from the air and one of these, Utiariti, was visited. Utiariti, a small village on the Papagaio River, is about 110 km (70 miles) southwest of the Cravari fazenda. The other waterfall seen from the air appears to be of comparable size and is located about 50 km (30 miles) east of Utiariti. There is reason to expect that there are similar waterfalls on the other north flowing rivers of this system to the west where they descend the escarpment. The waterfalls at Utiariti alone should be a source of considerable power. The Papagaio River is a stream of considerable size and the falls represent a sheer drop of 85 metres (280 ft.).

SEITEC had outlined a progressive and comprehensive program for general settlement and land development. Included in this program are such items as:

1. General study and characterization of the area
2. A schedule for increase of cattle production
3. Production of subsistence crops and vegetables and fruit for the personnel
4. Plan for providing the social services as needed
5. Exploration of market outlets and facilities.

The operators of the Cravari fazenda have expressed a willingness and a desire to have pertinent experimental work and studies undertaken on their land. This pioneering enterprise does offer an opportunity to initiate a program of experimental work, research and other studies whereby the basic information essential to effective and appropriate development of this and possibly other virgin regions, as yet uncomplicated by previous activities of man, can be obtained. It is an opportunity and a challenge that cannot be ignored.

It is apparent that land development costs in the region will be high and that considerable technical expertise and facilities as managerial skill will be needed for effective subsequent operations. Furthermore initial investment will be considerable and yet commensurate returns cannot be expected until several years after such investment. Thus who undertakes such development of production units must have adequate financial resources to carry on for this initial period of years without any returns. These needs for skills, facilities and finances are vital to the development of sound agriculture in the region.

The Centro de Estudos de Solos of the University of São Paulo and the Ohio State University Group at Escola Superior de Agricultura "Luiz de Queiroz" express their appreciation for the opportunity to make this field study and for the transportation and other facilities and conveniences provided by the operators of Agro Pecuária do Cravari.

#### RESUMO

No presente relatório os autores destacam aspectos gerais e comentam alternativas oferecidas à colonização de áreas da Amazônia, na faixa de contato savana-floresta. As observações dizem respeito à Agropecuária Cravari S.A., área de 136.730 ha, localizada a 21º20' de latitude sul e 58º de longitude, no baixo rio Cravari, município de Diamantino, Estado de Mato Grosso.

A região se caracteriza pela presença de extensas áreas cobertas de floresta virgem, com inclusões de cerrado. O relevo predominante é suavemente ondulado com áreas mal drenadas e praticamente planas ao longo dos cursos d'água, desfrutando altitude compreendida entre 250 e 350 m. As condições climáticas definem dois períodos distintos: uma estação seca de abril a setembro e uma chuvosa, de outubro a março, esta última apresentando média de 2.200 mm de chuva.

A colonização da Fazenda Cravari foi iniciada em 1967 obedecendo a planejamento elaborado pela SEITEC. Conta atualmente com 6.833 ha derrubados, dos quais metade já se encontra com pastagens formadas com colônia, jaraguá e "napier". O principal objetivo é a pecuária de corte. Nos terrenos mais baixos exploram-se o arroz, milho, mandioca e outras espécies de subsistência.

A área se comunica com Cuiabá pela BR-29 em trajeto de 380 km e por estrada secundária com 330 km. Esta última só é transitável na seca.

O trabalho realizado pela Agropecuária Cravari S. A. é pioneiro na região e, pela programação dos serviços, se pode esperar um importante e benfazejo estímulo regional.

Predominam na área os Latossolos arenosos vermelhos ou vermelho-amarelos. São terras ácidas e aparentemente com baixa fertilidade, provavelmente cobrindo os 4.000.000 ha de terras da bacia Juruena-Sangue. Foram colhidas amostras de 8 perfis de solos descritos na área.

Como problemas típicos dessa área podem-se mencionar aqueles que dizem respeito à manutenção e manejo das pastagens formadas; a aplicação de corretivos de acidez, de fertilizantes, de micronutrientes e o controle de fogo e de água na seca.

No tocante à energia elétrica e eventualmente na produção do adubo nitrogenado que a região necessita, sugere-se o aproveitamento do potencial hidráulico dos cursos d'água que demandam a bacia amazônica através da escarpa da serra dos Parecís.

Os autores agradecem à Agropecuária Cravari S.A. por haver proporcionado o transporte, a estada e atenções a eles dispensados por ocasião dessa visita de estudos.