

Doação

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ROTEIRO RELATÓRIO TRIMESTRAL DE ATIVIDADES

01. NOME DO CONSULTOR: Meka R. Rao
02. PERÍODO: Ist Trimester (January, February and March 1983)
03. TÍTULO DO PROJETO: 111.SB.13 - Strengthening Agricultural Research in Brazil Project-II.
04. NOME DA ATIVIDADE: K.02 SBB.1.1
05. TIPO DE ATIVIDADE:
- Pesquisa
 - Apoio e Pesquisa
 - Treinamento
 - Outras (Especificar)
06. LOCAL: Centro de Pesquisa Agropecuária do Trópico Semi-Árido (CPATSA/ EMBRAPA), Petrolina-PE.
07. ORGANISMOS BENEFICIÁRIOS (Relação):
- CPATSA and its Collaborating Institutes
08. TÉCNICOS COLABORADORES (Relação: Nome/Cargo):
- Dr. Luiz Balbino Morgado, Eduardo Assis Menezes, Severino Gonzaga de Albuquerque e José Moacir P. Lima Filho (Pesquisadores do CPATSA).
09. TRABALHOS REALIZADOS (Descrição sumária):
- See Attached Sheet
10. RESULTADOS CONCRETOS OBTIDOS NAS INSTITUIÇÕES ASSISITIDAS:
- See Attached Sheet
11. METAS ALCANÇADAS:
- See Attached Sheet

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12. CIRCUNSTÂNCIAS E ACONTECIMENTOS EXTERNOS AO IICA QUE AFETAM A EXECUÇÃO DAS ATIVIDADES:

13. TEMPO APROXIMADO QUE OS TÉCNICOS DEDICARAM ÀS ATIVIDADES - Dias/Homem:

IICA			OUTROS		
	6	2			

14. PERSPECTIVAS, AMBIENTE DE TRABALHO, INTERESSE DAS INSTITUIÇÕES QUE SÃO CONSIDERADAS IMPORTANTES PARA A MARCHA DAS ATIVIDADES (Deverão ser incluídas neste ítem, as sugestões sobre as ações que a Coordenação deverá tomar, visando melhorar a eficácia do trabalho do consultor).

- See Enclosed Sheet

15. ATIVIDADES QUE SERÃO DESENVOLVIDAS NO PRÓXIMO TRIMESTRE (Relacioná-las e indicar o local de execução).

- See Enclosed Sheet

16. DATA DE APRESENTAÇÃO:

21 de March 1983.

17. ASSINATURA DO TÉCNICO RESPONSÁVEL:

M R RAO
MEKA R. RAO

09. TRABALHOS REALIZADOS (Descrição Sumária):

- i) Results of 51 experiments on maize/beans and 34 on maize/cowpea available in literature were reviewed and analysed. A report on these results is in final stages of preparation.
- ii) Six intercropping experiments were established during the current rainy season in cooperation with the Center's national staff. These involve a number of crops important for this region, viz. maize, sorghum, cowpea, cassava, castor, cotton and millet. Millet is being evaluated at this Center for the first time in sole and in intercropping with cowpea.
- iii) I participated in a meeting organised by the 'Centro Nacional de Pesquisa de Seringueira e Dendê', Manaus for evaluating the results of intercropping experiments with rubber. I presented a paper 'Some concepts and experimental methods in intercropping research'. A copy of the paper and trip report are enclosed.
- iv) The necessary data are being collected from the on-going experiments.
- v) Preparations are being made for undertaking 3-4 experiments with controlled water application in the postrainy period.
- vi) I have taken the responsibility of an existing project on castor (população e arranjo espacial de mamona de porte alto consorciado com caupi e sorgo em Petrolina) as the coordinator of the project has gone for higher studies. The project aims to identify optimum plant populations and spacing for castor in sole and intercropping. At present we have two field experiments, one initiated during 1982 and another planted this year, evaluating four levels of populations in three different spatial arrangements. Results of these studies would form the basis for future experiments an intercropping of castor.

10. RESULTADOS CONCRETOS OBTIDOS NAS INSTITUIÇÕES ASSISTIDAS:

- i) Intercropping of maize/beans and maize/cowpea are 32% and 41% more advantages than their corresponding sole crops respectively. The intercrops are also less risky in the sense that for any required income, the probability of failure from intercropping is less than with sole cropping. To quote for a particular income (Cr\$ 60.000) in maize-bean combination, sole beans fails once in four years, sole maize once in five years, a shared system where both maize and beans are cultivated in soles fails once in six years but the intercrop of maize/beans fails only once in nine years.

A comparison of maize vs sorghum in 14 experiments indicates that sorghum performs consistently better than maize in the arid to very arid region.

These and our own limited experience at CPATSA suggest that sorghum can substitute maize in the traditional cropping systems of the 'sertão'. At present marketing seems to be a problem but to popularise its adoption the government should come forward with proper marketing facilities.

- ii) All our experiments are in good condition, and the two palma experiments and the trial on pearl millet are particularly in excellent shape. The millet is in grain filling stage while the other cereals maize and sorghum are yet to flower assuring a reasonable yield even if there are no more rains.
- iii) In a maize/cowpea intercrop study conducted during the summer season of 1982, maize did not respond to nitrogen even though the soil was low in nutrient status. One reason could be that as our experiment was conducted after a fallow there must have been a build up of $\text{No}_3\text{-N}$. There is some evidence in literature that during non-cropping period considerable $\text{No}_3\text{-N}$ accumulates in the profile. Determination of total nitrogen does not give a correct picture of the available nutrient status as $\text{No}_3\text{-N}$ is only a small fraction of total N. As a result of our experience it has been decided that soils from fertility related experiments should be analysed in future for $\text{No}_3\text{-N}$ in addition to total N.

The results of this experiment also showed that worthwhile advantage of intercropping (about 30%) was possible only in treatment where about 600 mm of water was applied. Where about 250 mm of water was applied intercropping did not offer any advantage over sole cropping. These results, though need to be verified, suggest that under low moisture situations maize/cowpea intercrop doesn't offer any additional protection against risk compared to sole crops.

14. PERSPECTIVAS, AMBIENTE DE TRABALHO, INTERESSE DAS INSTITUIÇÕES QUE SÃO CONSIDERADAS IMPORTANTES PARA A MARCHA DAS ATIVIDADES:

The working conditions at the center are satisfactory. All the collaborators are showing keen interest and actively participating in the conduct of the experiments. Though support staff are not available to the full requirement, we have been able to manage reasonably well.

15. ATIVIDADES QUE SERÃO DESENVOLVIDAS NO PRÓXIMO TRIMESTRE (Relacioná-las e indicar o local de execução).

- i) Harvesting, threshing and collection of yield and other data in the rainy season experiments.
- ii) Analysis and intercropping of results from the present experiments.
- iii) Conducting the following experiments: a) Water x nutrient interaction in a maize/cowpea intercrop (this will be a repeat of the last summer experiment) b) Physiological study with detailed crop growth analysis and resource use measurements wherever possible. c) Preliminary trial on screening of herbicides for maize/cowpea intercrop system. d) Response of sole vs intercrop to plant population under varying moisture conditions. The moisture is varied by line-source sprinkler system.