

Acknowledgement: The paper is prepared during the period of the author's training in Agricultural Statistics, in the Paddy section of the Agricultural College and Research Institute, Coimbatore, as kindly permitted by the Government of Madras. The author gratefully acknowledges the help received from Sri M. B. V. Narasinga Rao, B. A., B. Sc. (Ag.), Paddy Specialist, in the course of the preparation of this paper. His thanks are also due to Sri C. Balasubramniam, B. A., B. Sc. (Ag.), Agricultural Meteorologist, for valuable guidance.

REFERENCES.

1. Adyantaya, N. K. (1931) : The Madras Agricultural Journal Vol. XIX.
2. Anantapadmanabha (Rao 1938) : Journal of the Mysore Agricultural and Experimental Union. Vol. XVII.
3. Cochran (1938) : Suppl. Journ. Roy. Stat. Society Vol. 7.
4. Hubback (1927) : Indian Journal of Statistics Vol. 7.
5. Irwin (1938) : Suppl. Jour. Roy. Stat. Society Vol. 7.
6. Panse and Kalamkar (1944) : Current Science, Vol. XIII.
7. Panse, V. G. (1951) : Indian Cotton Growing Review, Vol. 5.
8. Ramakrishnan, S. (1934) : Indian Journal of Statistics Vol. 2.
9. Subramania Iyer (1942) : Indian Farming, 1942.
10. Thomas and Sastry (1939) : Indian Agricultural Statistics
11. Vaidyanathan, M. (1932) : Agriculture and Livestock in India Vol. II.

Methods to be Adopted to Maximise Production and Development of Improved Strains and Plant Materials*

Cardamoms

By

V. GOMATHINAYAGAM PILLAI,
(Cardamom Specialist)

Cardamom is an indigenous spice of South India. It is cultivated in about 1,08,000 acres on the hills as a plantation crop. It is a perennial, yielding about 33-35 pounds of dry capsules per acre per annum. About 80% of the total production is exported mostly to the hard currency area. Though this crop does not contribute directly to the food wealth of South India, it is definitely a good dollar earning crop. The price of cardamom has risen up high recently to about Rs. 10/- per pound. Hence, there is now an urge on the part of the planters for manuring their cardamom crop to maximise production. Usually the cardamom crop is not manured.

* Paper contributed for College Day & Conference 1952.

ring the period of the
e Paddy section of the
Coimbatore, as kindly
hor gratefully acknow-
a Rao, B. A., B. Sc. (Ag.),
ration of this paper.
am, B. A., B. Sc. (Ag.),

ltural Journal Vol. XIX.
lysoe Agricultural and
on. Vol. XVII.
Stat. Society Vol. 7.
Statistics Vol. 7.
Stat. Society Vol. 7.
ol. XIII.
wing Review, Vol. 5.
Statistics Vol. 2.
942.
l Statistics
vestock in India Vol. II.

Production and Uses and

dia. It is cultivated
crop. It is a perennial,
ce per annum. About
e hard currency area.
food wealth of South
he price of cardamom
and. Hence, there is
ring their cardamom
a crop is not manured.

1952.

Except in parts of Coorg where the holdings are small and where the individual owners can pay concentrated attention, nowhere else are cardamom crops usually manured on a plantation scale. The reason for this is due to this crop managing to give a fair yield without any application of manure. The fertility of the soil is maintained by the compost naturally formed by the leaves that fall from shade trees from time to time. The old leaves rot and are decomposed while new ones cover the surface again.

Determination of a suitable manure mixture is engaging the attention of the cardamom scheme. Soil samples taken at random from the cardamom plantations on these hills were analysed by the Government Agricultural Chemist, Coimbatore, who was kind enough to suggest, on the basis of the analysis, trials with organic and inorganic manures mentioned below. The Statistical Adviser of the Indian Council of Agricultural Research has given a plan of lay out for the experiment. The sanction of the Indian Council of Agricultural Research and the State Government to include these trials in the Technical Programme of the Scheme was obtained in June 1952. The experiment will be started in the coming August.

The manures to be tried are: (1) Nitrogen in two forms i. e. as Ammonium Sulphate and Groundnut Cake at the rate 40 pounds, (2) Super Phosphate to supply 40 pounds of P_2O_5 , (3) Potassium Sulphate to supply 80 pounds K_2O and (4) Lime at the rate of 1 ton per acre.

The lay out proposed by the Statistician is a confounded factorial experiment with 32 treatment combinations of the five factors each at 2 levels i. e. (1) N *versus* no N, (2) P *versus* no P, (3) K *versus* no K, (4) Lime *versus* no Lime and (5) Supplying Nitrogen in the form of Groundnut Cake *versus* supplying Nitrogen as Ammonium Sulphate, all taken together. The treatments have been randomised and replicated five times.

After the experiments are conducted and the results obtained, we will be in a position to recommend suitable manurial mixtures to maximise production of cardamoms. Though it is not the custom to manure this crop, the above experiment has been laid out to meet the demand that has just arisen.

To improve production by evolving strains, the cardamom scheme has been doing work at the Cardamom Research Station, Singampatti Hills. About 120 single plant selection from the Singampatti variety were tested for their yield for three seasons. The best twenty two among them have been advanced to replicated yield trials on a field scale. They have just started yielding. After studying their performance further, the best among them will be released for distribution. It may be noted that

the life cycle of cardamoms from seed to seed varies from 5 to 7 years. As such, the breeding work in this perennial crop is bound to be slow.

Another method by which production can be improved is by reducing loss caused by pests and diseases. The cardamom thrips (*Taeniothrips cardmoni*, 'Ramakrishna') was responsible for a considerable loss in the production of cardamoms. Experiments conducted by this scheme have proved that Nicotine sulphate (0.05%) as a spray and Gammexane D. 025 as a dust are quite effective in controlling the pest. These measures are advocated and are popular. A paper on the control measures was presented at the College Day and Conference 1951 and has been published in the April 1952 issue of the Madras Agricultural Journal.

Growing of Kolukkattai Grass (*Cenchrus ciliaris*) Under Irrigated Conditions

By

B. W. X. PONNAIYA, B. sc. (Ag.). M. sc.
Superintendent, Agricultural Research Station, Koilpatti
and

R. SAMBANDAM, B. sc. (Ag.).
Farm Manager, Agricultural Research Station, Koilpatti

Introduction: Kolukkattai grass is an indigenous popular fodder grass of the Madras State. It is the staple pasture grass for the Kangayam breed of cattle. (Chandrasekara Iyer & Daniel Sundararaj — 1950). The grass has spread throughout the state either through the Agricultural Department or private agencies.

Although the value of the grass is known as a pasture grass under rainfed conditions, its economic worth as an irrigated crop has not been studied so far. This paper presents the yield-behaviour of this grass under irrigated conditions as compared to the three other popular grasses of the state over a period of three consecutive years.

Materials and Methods: The seed material for the trial were obtained from the Government Lecturing and Systematic Botanist, Agricultural College and Research Institute, Coimbatore. Four popular grasses of the state, namely, (i) Kolukkattai grass (*Cenchrus ciliaris*)