

Other items of research such as swarm prevention, artificial granulation etc. are in progress; the results of these investigations will be given in a later paper.

Propaganda. The popularity which beekeeping is gaining as a cottage industry is indicated by the steady demand for advice and appliances from all over the Presidency as well as from other provinces of India. Owing to the activities of the department as well as those organisations like the Rural Reconstruction Centre, Ramanathapuram, over 1000 hives distributed among 130 villages are being maintained in this Presidency. The figures given are those obtained last year. The department, in spite of inadequate equipment is doing its best to popularise this industry. A colony of bees along with some of the apicultural appliances has now become a regular feature in almost all the exhibitions and fairs. In addition to this, numerous demonstrations in hiving wild colonies and in the care and management of apiaries have been conducted in various parts of the Presidency. Apicultural requisites such as hives, extractors, smokers, are being made and supplied to the public almost at cost price. In order to popularise this industry further, short courses in beekeeping, for about a month during February are being held for the past two years. More than 50 young men have been trained in the subject and it is hoped that they carry their knowledge of the subject to the very door of the ryot.

A departmental bulletin—Bulletin No. 37—Beekeeping in South India—and a pamphlet on the subject were published and the popularity of these publications has been more than what was expected. A leaflet giving practical hints for amateur beekeepers is under preparation.

Before concluding this paper a word may be said about the economics of beekeeping. The appliances needed are not many nor are they costly. A teakwood hive with a colony of bees costs Rs. 5 only. On an average 6—10 lbs. of honey is got in a year from a hive fetching Rs. 7—8—0 to Rs. 12—8—0 at Rs. 1—4—0 per lb. Thus, if a ryot keeps at least 3 or 4 hives he can get about Rs. 30 per year. It will therefore be seen that the possibilities of beekeeping as a cottage industry are great.

Research Notes.

A Note on the interspecific cross in the Cucurbits.

Intergeneric and Interspecific crosses in the family Cucurbitaceae were attempted at the Agricultural Research Station, Pattambi. While the intergeneric crosses were failures, some of the interspecific crosses were successful. A brief description of a successful interspecific cross is given below:

One of the two species chosen for the cross, *Luffa acutangula*, is a cultivated variety the fruit of which is commonly used as a vegetable; the other species

Luffa aegyptiaca, is a wild variety and is commonly found growing along hedges, and is fairly drought resistant. The object of this cross was to introduce the hardiness and drought resistant characters of the wild variety into the cultivated one. The main differences between the two species are given below:

	<i>L. acutangula.</i>	<i>L. aegyptiaca.</i>
Leaf	Faintly five lobed	Deeply five lobed
Flower	Opens between 5 and 6 P. M.	Opens between 4 and 5 P. M.
Fruit	Oblong clavate with 10 sharp angles	Large, cylindric and smooth
Seed	Not winged, slightly rugose on the sides	Narrowly winged, smooth on sides

Both the reciprocal crosses were successful, and the setting of seeds was fairly large. The F_1 characters were all intermediate especially as regards the more striking of the characters as observed in leaf shape, flower opening (opens between 10 and 11 P. M.), nature of seed coat, and the shape of the fruit. The F_1 plant put on vegetative growth for a period of about one year from sowing; during this period it had one flush of fruiting during the months of February to May, standing the hot weather conditions remarkably well; after the hot weather and with the commencement of the monsoons it again gave a second flush of fruiting.

The germination of F_1 seeds was very poor and therefore a few plants (about $\frac{1}{2}$ dozen) only could be studied. The few plants that were examined were intermediate in all the characters. The production of pistillate flowers was also very few.

An intervarietal cross was attempted between *Luffa acutangula* and *Luffa acutangula*, var., *amara*. The latter is a wild variety while the former is the cultivated one. The wild variety is exactly like the cultivated one, excepting that the fruit is very much smaller (3 inches long and about $\frac{1}{2}$ inch thick), and the leaves, flowers, etc., are comparatively smaller than *L. acutangula*. In this case the cross between *L. acutangula* (female) and *L. acutangula*, var., *amara*, (male) was successful while the reciprocal did not fertilize.

The fruit of the F_1 was intermediate in shape; and the F_2 seeds did not germinate for further studies.

C. Rajasekhara Mudaliyar,
(Assistant to the Paddy Specialist).

Agricultural Jottings

BY THE DEPARTMENT OF AGRICULTURE, MADRAS

I. An Improved Water-Lift for Short Lifts. An improved water-lift of the circular mhote type has been designed by the Agricultural Department and subjected to a long period of trial with very satisfactory results. It is an improvement on the well known circular mhote so extensively employed in the South Arcot district.

The lift employs two cylindrical buckets which rise and fall, the one ascending full of water whilst the empty one descends. A large hinged flap valve in the bottom of each bucket allows the buckets to submerge and fill as they are lowered into the water at the ends of their supporting chains. Each bucket is hung in an inverted 'U' shaped yoke which is hingedly attached to projecting pins on the