

RESULTS OF EXPERIMENTAL AND DEMONSTRATION PLOTS WITH COW-PEAS 1937.

by Dr. S. Hurvitz.

Experiments on the cultivation of cow-peas in connection with differences in the soil- and climatic conditions of various regions were carried out at Rehovoth and in different settlements by the Division of Agronomy and Extension Division.

1) *Varieties :*

Seven varieties were tested :

1. Whip-poor-will ; 2. Brabham ; 3. New Era ; 4. Black Eye ;
5. Black Mouth ; 6. White Wonder ; 7. Iron.

Whip-poor-will and Brabham distinguished themselves as in the previous year. It may be noted that Whip-poor-will variety showed a slightly higher yield than did the Brabham.

2) *Sowing Time :*

The cow-pea is very susceptible to cold, under the influence of which it leaves turn yellow and drop, and the plant either ceases to develop or dies. The cold weather condition and especially the low night temperatures in early spring of 1937 were responsible for the slow development and long growing period of the plants sown towards the end of March and beginning of April. On the other hand, the seed sown in autumn, when fine weather prevailed, gave satisfactory results. It is concluded on the basis of the results obtained in this and the previous year's experiments that cow-peas should not be sown earlier than the end of April or later than the middle of August.

3) *Sowing Methods :*

Cow-peas gave the same yield when sown broadcast and when sown by machine (drill).

4) *Seed Quantity :*

The quantity of seed applied per unit area has been found to

be important in regard to the yield. Our observations may be summarized as follows :—

On the whole 7 kg. of seed/dunam are sufficient, especially if the sowing is done by drill. In a field infested with weeds, a slightly larger quantity is desirable, so that the cow-peas may be enabled to choke the weeds. In such a case, therefore, 8 kg./dunam is the proper seed quantity.

5) *Soil Preparation :*

Weeds greatly influence the yield. In the initial phase of its growing season, the cow-pea develops but slowly, so that during this phase the weeds are a great danger. The negative results reported with cow-peas by some farms are probably due to one or both of the following causes : irregular irrigation or infestation with seeds.

When cow-peas are to be sown in a field infested by weeds, germination of the weeds should first be effected by means of a previous irrigation ; the weeds are then destroyed and the cow-peas sown on the moist soil as soon as possible.

6) *Inoculation :*

Inoculation experiments were not carried out this year. An interesting observation was made in a cow-pea field in Hefzi-Bah. There half of the seeds was inoculated and the other half left non-inoculated. Notwithstanding the additional nitrogen fertilizer applied to the part of the field which was sown to non-inoculated seed, the difference in the yield between the two parts of the field was large ; The inoculated seed yielded 3370 kg./dunam and the non-inoculated 2340 kg./dunam.

7) *Seed Mixture :*

A search for a suitable partner to cow-peas among maize and millet varieties gave negative results because of the difference in the growing period of cow-peas and of the various plants tried. A later sowing of the partner also failed to give the desired results.

8) *Irrigation :*

The water requirement varied according to the climatic con-

ditions, time of sowing, type of irrigation and time interval between the irrigations in different settlements. Yield exceeding 4000 tons/dunam were attained in various regions with 350 m³ water under the flooding system, and with 250—300 m³ under the overhead system of irrigation. The important factor here is not the total quantity of water applied but its application at fixed and close time intervals. The proper interval has been found to be 8, 10 or 14 days, depending on the water supply and the period of growth under flood irrigation, and 5 days under overhead irrigation.

9) *Cutting Time :*

In the initial phase of the growing period, the cow-pea develops very slowly. For a long time growth seems altogether to have ceased. Finally, however, the plants begin a rapid growth which is continued until a certain height is reached. After this the leaves begin to turn yellow and wither and the yield decreases. In different cases cutting before the appropriate time led to a loss in yield amounting to 1—1.5 ton/dunam. The composition of the plants was the same when the fodder was harvested at an early or late date. The best yield was obtained when the pea was cut while still in full bloom and some of the pods had turned brown.

10) *A Second Harvest :*

There is no doubt that a second and even a third harvest can be obtained. In one of the settlements, the first cutting yielded 4060 kg./dunam. In another settlement, a first cutting yielded 3000 kg. of green matter, and a second — 90 kg. of seeds dunam. The first growing period was 76 days, the second — 53 days. When a second harvest is desired, the field should be irrigated immediately after the first cutting.

11) *Cultivation of Cow-peas as a Non-irrigated crop.*

Cow-pea which was not irrigated gave a yield of 750—850 kg. of green matter/dunam, and about 20 kg. of seeds. As these yields are by no means satisfactory, the cultivation of cow-peas as a non-irrigated crop does not at present appear to be justified.