

EXPERIMENTAL APICULTURE

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There is room for improvement in hive appliances, extractors, forage, and other things, but the one place where there is the greatest need for improvement has been generally neglected by bee-keepers; I refer to the improvement of the bees themselves. All bee-keeping is pre-eminently breeding work. The honey is the product and the ultimate object of the industry, but the working problem is strictly one of breeding. The bee-keeper can increase his output by improvement in two places: first, in the manipulation and food supply; and second, in the bees themselves. Manipulation and food supply are being discussed continually but we get very little real information on the improvement of bees. I do not refer now so much to the introduction of new races, but, particularly, to selection of breeding stock.

The Italian race of bees was introduced into this country about 1860, and the credit for this important introduction need not concern us at this time. The important thing now is to examine the situation to see how much this race has been affected by breeding in the hands of the bee-keepers of this country since its introduction. From about 1860 on, there has been, in some quarters, an interest in breeding this race for color, and this has been done very successfully, several different breeders having taken up this line of work and succeeding, by selection, in producing five-banded Italians. As an example of what can be done by careful selection among bees this work is of

value to us. Other breeders have selected for gentleness and, since this character is not as measurable as color, it is harder to make definite statements concerning the results obtained, but it is evident that, either intentionally or accidentally, some good has been done along this line.

But the main object in the keeping of bees is honey production; how much has the average output per colony been increased in the past forty-five years? Every bee-keeper knows that the more populous the colony during the honey flow the more surplus honey stored, other things, such as honey flow and weather, being equal. The problem then, reduces itself very largely to the fecundity of the queens and the question may be changed so as to ask how much the prolificness of Italian queens has been increased in the past 45 years. Another very important factor in honey production is the eagerness with which bees go after nectar, and a third is the tongue-length, enabling them to reach the nectar in long corolla tubes. Italians lack the eagerness which is possessed by Cyprians, but there are Italian colonies which have it to a marked degree. Several strains of long-tongued or "Red Clover" Italian bees have arisen in the past few years, but what is the history of the strains? When a queen is sold and introduced into a honey-producer's apiary, before many generations, the progeny cease to work on red clover, if they ever did; for the reason that proper selection is scarcely ever practiced and there is not close enough inbreeding. This is certainly due to lack of proper methods in following up the breeding:

We may conclude, then, that prolificness, vigor and tongue length, which frequently appear in Italian bees are not ordinarily used to proper advantage by the majority of bee-keepers. Anyone reading the reports of the early Italian importations will see that the