

LINE PROJECT DESCRIPTION

1. No. ^E~~5-1~~ (C)

- 2. Service and Units
ARS - EU - Biochemical Section
- 3. Line Project Title Development of new outlets for surplus honey through studies of its use in pharmaceutical formulations.
- 4. Work Project Title
Sugars and Sirups Investigations
- 5. Project Leader and Address
J. W. White, Jr., Wyndmoor, Pa.
- 6. Location of Work
Wyndmoor, Pa.; other laboratories to be selected for contract
- 7. Estimated Duration
5 years
- 8. Objective; 9. Justification; 10. Plan of Work; 11. Cooperation.

8. Objective:
To expand the use of honey in the pharmaceutical industry by developing new formulations, improving present uses and determining quality factors for honey for such use.

9. Justification:
The changes in agricultural practices in the past few decades have had a serious and unforeseen effect on the natural pollination of many crops. Twenty-four fruit and 36 seed crops, including the all-important legumes, have been listed as being dependent upon insect pollination. Years ago native wild pollination insects were adequate. Now, with more intensive cultivation largely destroying these ground-living insects, with the tremendous expansion in insecticide use, and with the increasing use of weed killers, pollination of many crops is increasingly dependent upon the honey bee. The monetary value to the farmer of the 29 most important of these 60 seed and fruit crops was about \$1,460,000,000 in 1950. The income of the beekeeper is principally derived from the sale of honey and wax. Payment for pollination services is just now becoming an important additional source of income. The total value of the national production of honey and wax declined from a postwar high of \$58,800,000 in 1947 to \$37,508,000 in 1950. This failure of income to keep pace with generally rising costs is causing many beekeepers to leave the business.

For several years this Department has carried out programs intended to increase the return to the beekeeper. In direct purchases, price-support purchases, export and new-use subsidies, a total of about \$7,560,000 has been expended in the years 1948-53, over \$1,500,000 per year.

12. Signature	Title	Date
Recommended <i>J. J. Willaman</i>	Head, Biochemical Section	July 23, 1954
Recommended <i>J. W. White</i>	Chief, Eastern Branch	July 23, 1954
Recommended		
Approved FOR NEGOTIATION ONLY <i>C. F. Speck</i>		8/27/54

Honey has been used pharmaceutically from time immemorial. Its position has diminished in modern times to occasional employment in proprietaries for its sweetening powers. Even in this use it has largely been replaced by other sugars. The principal possible uses of honey are viewed as sweetener and possibly as a flavoring agent. No systematic study of the value of honey in this field has been made, especially from the standpoint of flavor. This latter is an important factor in pharmaceutical preparations and the wide variety of natural honey flavors available in the different floral types of honey is largely unknown in the industry. It is believed that if advantages can be demonstrated for the use of honey an appreciable increase in such use could be brought about. At the present time insufficient is known in the pharmaceutical field of the properties of honey and by the honey industry of the specialized requirements of the pharmaceutical field to allow intelligent expansion of this possible use of honey.

It is proposed that the present project carry out in the pharmaceutical field studies generally similar in objective to those recently completed in the commercial baking field under projects u-5-1-7(C) and u-5-1-19(C).

The interest of the Specialty Crops Section, Fruit and Vegetable Division, Agricultural Marketing Service in work in this field has been indicated in a memorandum from A. E. Brown, Fruit and Vegetable Division, Agricultural Research Service to E. R. Glover, Assistant to Assistant Administrator for Marketing, Agricultural Research Service dated April 3, 1953.

It is proposed that this project be carried out by contract with an organization with experience in the pharmaceutical field which is highly regarded by the industry. A college of pharmacy or department of pharmacy of a university would appear to be suitable contractors. Specialized experience in pharmaceutical chemistry available in such organizations is required for the successful prosecution of the work.

10. Plan of Work:

An examination of typical pharmaceutical formulations using sweetening and flavoring agents will be made with the view of determining the effect of partial or complete substitution of honey in the preparations. Attention will be given to determination of property variables of honey that require control to permit its use. A set of proposed specifications for honey purchased for pharmaceutical use will be developed. Detailed plans of work will be developed in conference with the contractor.

11. Cooperation:

Additional cooperation of interested organizations will be developed as it becomes desirable in the course of the work.