

2. Agency, Bureau or Branch : 3. Regional Laboratory : 3a. Division
BAIC : Eastern : Biochemical

4. Line Project Title
Evaluation of Dry Honey-Skim Milk as an Ingredient of Baking Mixes

5. Work Project Title
Study of the Chemical, Physical and Biochemical Properties of Apiary Products for the Purpose of Extending their Utilization, of Developing from them New and Improved Products, and of Finding New Uses for them.

6. Financial Project Title
Section 10(a): Developing New and Improved Uses of Agricultural Commodities

7. Project Leaders
J. J. Willaman and J. W. White, Jr.

8. Locations or Areas Involved : 9. Estimated Duration
Wyndmoor, Pa. and another locality to be selected: Two years

10A- Object: To determine on a pilot plant scale the desirability and practicality of dry honey-skim milk as a constituent of prepared dry mixes for commercial and home baking.

10B- Plan of Work: In order thoroughly to evaluate the potentialities of dry honey-skim milk as an ingredient in prepared dry mixes and to overcome any technological problems encountered, it is proposed to contract this research with a company producing these products, which has adequate laboratory and pilot plant facilities.

This laboratory, in cooperation with the Bureau of Dairy Industry, has recently developed a process for preparing a powdered mixture of 40 parts honey solids and 60 parts skim milk solids. One possible use is as an ingredient of prepared baking mixes.

Problems to be studied will include (a) applicability of present mixing and material handling equipment to preparing mixes on pilot or larger scale; (b) effect of inclusion of dry honey-milk on stability and shelf life of the prepared mix; (c) adequacy of present packaging for the mixes when dry honey-milk is an ingredient; (d) proper type of packaging of dry honey-milk from viewpoint of this use; (e) the desirability of this form of honey as an ingredient based on the finished baked goods from the prepared mixes.

By letting this project for contract to an outside group, it will be possible to utilize personnel skilled in this field and to evaluate the product on pilot plant or larger scale equipment actually used in production of prepared bakery mixes.

10C- Brief Summary of Previous Work: The industry engaged in the manufacture of (continued on next page)

11. Cooperation: An industrial concern to be selected for contract.

RECOMMENDED	12. (A)	J. J. Willaman	: Head, Biochemical Division	: September 8, 1950
	(B)	J. W. White	: Director, Eastern Laboratory	: September 8, 1950
	(C)		:	:
	(D)		:	:
	(E)		:	:

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prepared dry mixes for commercial and home baking use has expanded greatly in the past few years. In 1947 there were over 200 firms making baking mixes, using over 400 million pounds of flour (2% of all wheat flour), with about half of this total being used in family mixes. At that time it was estimated (1) that sales would at least double within five years. One company is reported (2) to produce 138 prepared mixes and 68 doughnut mixes.

A great many formulas for these products include dry skim milk and a sugar. One of the detriments to the use of honey in baking has been the difficulty of handling the sticky thick sirup. With dry honey-milk it is now possible to include honey in a formula without these difficulties.

References (1) Wall St. Journal, Oct. 29, 1947, p. 1.
(2) Food Industries, 21, 1646 (1949)

10D - Relationship to Other Work in Progress: General relationship to: RM:a-87-3, Development of Processes for Manufacture of Dried Partially Skim and Skim Milk and Honey Products; RM:a-87-4(c), Development of Industrially Useful and Acceptable Formulas for the Use of Honey in Bakery Products and Characterization of Honey Quality and Specification for such Use.