

MAY 27 1988

1. Name of the proposed center: Southeast Dairy Foods Research Center (SEDFRC)
2. Specific objectives and goals of the proposed center:
 - a. To conduct research to develop new and improved dairy products, and increase use of and demand for current dairy products.
 - b. To develop, coordinate and seek funding support for multidisciplinary research programs and projects to meet objectives and for the purpose of disseminating results of the dairy research to the dairy industry.
 - c. To develop and maintain information on dairy research being conducted in the United States and to disseminate this information to the dairy industry and dairy researchers.
 - d. To attract visiting scholars from other public and private universities, governmental research agencies, and from private business and industries.
 - e. To coordinate activities with other Dairy Centers funded by the National Dairy Promotion and Research Board (NDPRB) to ensure that activities conducted by the Dairy Centers are efficient and cost effective.

The Center will facilitate a comprehensive graduate research program to provide educational and research opportunities to students at the M.S. and Ph.D. levels in food science. The Center will emphasize a disciplinary and multidisciplinary approach to research and will provide a mechanism to attract high-quality students, post-doctoral fellows and visiting scholars to increase the quality and quantity of individuals trained in the area of dairy foods research.

3. The unit's relationships to or potential impact upon the existing academic departments, schools, institutes and centers at North Carolina State University: Funding for the Center is primarily provided by the National Dairy Promotion and Research Board (NDPRB) and regional dairy industry. North Carolina State University (NCSU) and Mississippi State University (MSU) are recognized for their strong research programs and have academic and research expertise in multi-disciplinary fields which are essential to providing an integrated, multidisciplinary research effort on behalf of the dairy industry.

In an effort to combine the individual expertise and experience of University personnel and to provide sufficient facilities to successfully establish a Dairy Foods Research Center, North Carolina State University and Mississippi State University, by agreement, have established a working relationship with regard to the conduct of Center research activities, management and financial accountability. To ensure efficient coordination of Center activities, and adequate communications of Center activities to the NDPRB and other funding agencies, the Universities have agreed that North Carolina State University shall be the "Lead institution" with regard to carrying out the informational, financial and administrative responsibilities of the Center.

The Center will provide an opportunity and a mechanism to strengthen the Department of Food Science at NCSU and the Departments of Food Science and Dairy Science at MSU. Opportunities for cooperation and interaction with selected departments in Engineering at NCSU will exist and will be sought, when appropriate or needed. New opportunities for graduate students to be trained in food science, with emphasis upon dairy foods research, will be provided. Each of the departments primarily, or potentially, involved in the Center have faculty expertise that can contribute to the goals and objectives of the Center. Initially, the research program will involve faculty in the Department of Food Science at NCSU and in the Department of Dairy Science at MSU. It will be expanded to include faculty from other departments as funding opportunities increase. The Center will complement research activities of the Center for Aseptic Processing and Packaging Studies (CAPPS). Opportunities will exist and will be sought for cooperation and interaction between faculty involved in both Centers. As an organized research unit, the Center will have a beneficial effect on recruiting outstanding graduate students, post-doctoral fellows, and visiting scientists. The Center will not have a direct impact on academic departments or units (other than those noted) at North Carolina State University or within the University of North Carolina.

4. The name of the proposed director, and a description of any proposed advisory or directive boards:

Center Director: The initial Center Director will be Dr. David R. Lineback, Professor of Food Science and Head, Department of Food Science at North Carolina State University. Food Science is a department in the College of Agricultural and Life Sciences with Dr. Durward F. Bateman as Dean. The Director shall be nominated by the Dean of the College of Agriculture and Life Sciences at NCSU and shall be approved by the Vice President of Forestry, Agriculture and Veterinary Medicine at MSU and by the Operational Advisory Committee (OAC) described later.

The Director shall be the Chief Administrative Officer of the Center and shall serve at the pleasure of the Dean of the College of Agriculture and Life Sciences at North Carolina State University.

Specific responsibilities of the Director include:

- a. Selection of research projects to be funded based on recommendation of the Technical Advisory Committee (TAC) and the Operational Advisory Committee (OAC).
- b. Budgeting and administration of Center funds.
- c. Interact with industry participants, primarily through the OAC, with the NDPRB, and with the Directors of other Dairy Foods Research Centers.
- d. Promote the scientific affairs of the Center.
- e. Promote technology and information transfer from the Center to the dairy industry.
- f. Policy decisions.
- g. Issuance of quarterly and annual reports and annual program plan.
- h. Coordinate and schedule meetings of the TAC and OAC.
- i. Implement policies.
- j. Coordinate information services.
- k. Oversee Center operation.

Technical Advisory Committee (TAC): The Technical Advisory Committee (TAC) shall consist of the three Center Co-directors (initially two faculty from the Department of Food Science, NCSU and one from the Department of Dairy Science, MSU) and a scientific representative of the Board. The responsibility of the TAC is to:

- a. Determine the scientific merits of projects submitted to the Center for funding.
- b. Recommend approval of the annual report to the Center Director.

- c. Prepare an Annual Program Plan for approval by the Center Director and the Operational Advisory Committee.

Operational Advisory Committee (OAC): The Operational Advisory Committee (OAC) shall consist of the Vice Chancellor for Research at North Carolina State University, the Deans of the Colleges of Agriculture at North Carolina State University and Mississippi State University or their designees, the Chief Executive Officer of the Board (NDPRB) or his (her) designee, and the Director of the Center. Membership of the OAC may be expanded to add faculty members from academic institutions participating in the Center and representatives of other organizations contributing funds to the Center. The OAC shall advise on the overall policies and program goals for the Center and shall develop short- and long-term research objectives to ensure that projects approved for funding will meet these objectives.

5. Budget estimates for the first year of operation, projections for the following four years, and anticipated sources of funding: Proposals for, and funding of, the six Dairy Foods Research Centers were based on approximately equal contributions by the NDPRB, regional dairy industry (could include gifts, grants/contracts, scholarships/fellowships and equipment) and the university/state. The NDPRB has agreed to fund the Center in an amount not to exceed \$400,000 per year for a minimum of a five-year period ending June 30, 1992. The two institutions (NCSU and MSU) participating in the Center will contribute 6.0 faculty FTE towards dairy foods research and extension, and research operating funds, and facilities. Research programs (projects) of the Center will result in additional opportunities for funding. Increased support will be actively sought from regional and national dairy industry, appropriate food industry, and other (foundation, government, trade) funding sources. Budget estimates for the first year of operation and projections for the following four years are shown in Table I.
6. Descriptions of immediate space needs and realistic projections of future space needs: The immediate space needs of the Center to accommodate the office requirements of the Director, graduate students, post-doctoral fellows, visiting scientists and specialized research laboratories can be met by existing facilities within the departments involved. Specialized scientific equipment and instrumentation required for the research are available within the departments involved or in other departments at the two universities participating in the Center.

As the Center successfully develops, with the potential of additional funding leading to increased faculty involvement and expansion of dairy foods research programs, it is anticipated that additional space could be needed during the next five years. The laboratory and office space requirements of the Center will be included in the space and facilities planning and implementation schedule of the departments involved.

7. Statement of other needs such as capital equipment and library resources: The research and educational programs to be carried out by the Center will not require unusual or extraordinary capital equipment or library resources beyond the facilities and resources already available. Usual and ordinary research purchases are included in budget plans for the Center.
8. Statement about anticipated effects of the proposed unit on the instructional programs of the proposing institution: The Center will provide a mechanism and forum for faculty with interests in dairy foods research to cooperate in mutually beneficial research programs having an impact on graduate and undergraduate instruction at the two universities. The Center is expected to have a positive and beneficial effect on instructional programs at NCSU, particularly those in the Department of Food Science.
9. Description of the proposed unit's responsibility structure, including an organizational chart showing the relationship of the proposed unit to the internal organization of the proposed unit: The Center will operate as an organized research unit within the Department of Food Science, College of Agriculture and Life Sciences. Figures 1 and 2 illustrate the organizational structure of the Center and placement of the Center in the organizational structure of the College of Agriculture and Life Sciences.
10. Additional information which the institution may care to include which may bear directly upon the proposal: Cooperative research programs between industry and the university, as represented by the proposed Center, are consistent with the long-standing mission and tradition of North Carolina State University as a land-grant institution.

The National Dairy Promotion and Research Board is an administrative board created by the Dairy and Tobacco Adjustment Act of 1983. The Board is required, among other things, to solicit research proposals that would examine other efforts to expand demand for milk and dairy products. The Board has determined that it is in the best interest of dairy farmers to support a coordinated and integrated, multidisciplinary research effort regarding the development and utilization of milk and other dairy products.

It was determined that there is a compelling need for the establishment of dairy product/processing research centers. These centers should be established under a long-term strategy with stable funding. The U.S. dairy industry needs such centers for its continued growth and strengthening via education, training and research.

Table 1. Budget Estimate and Sources of Funding

Funding:

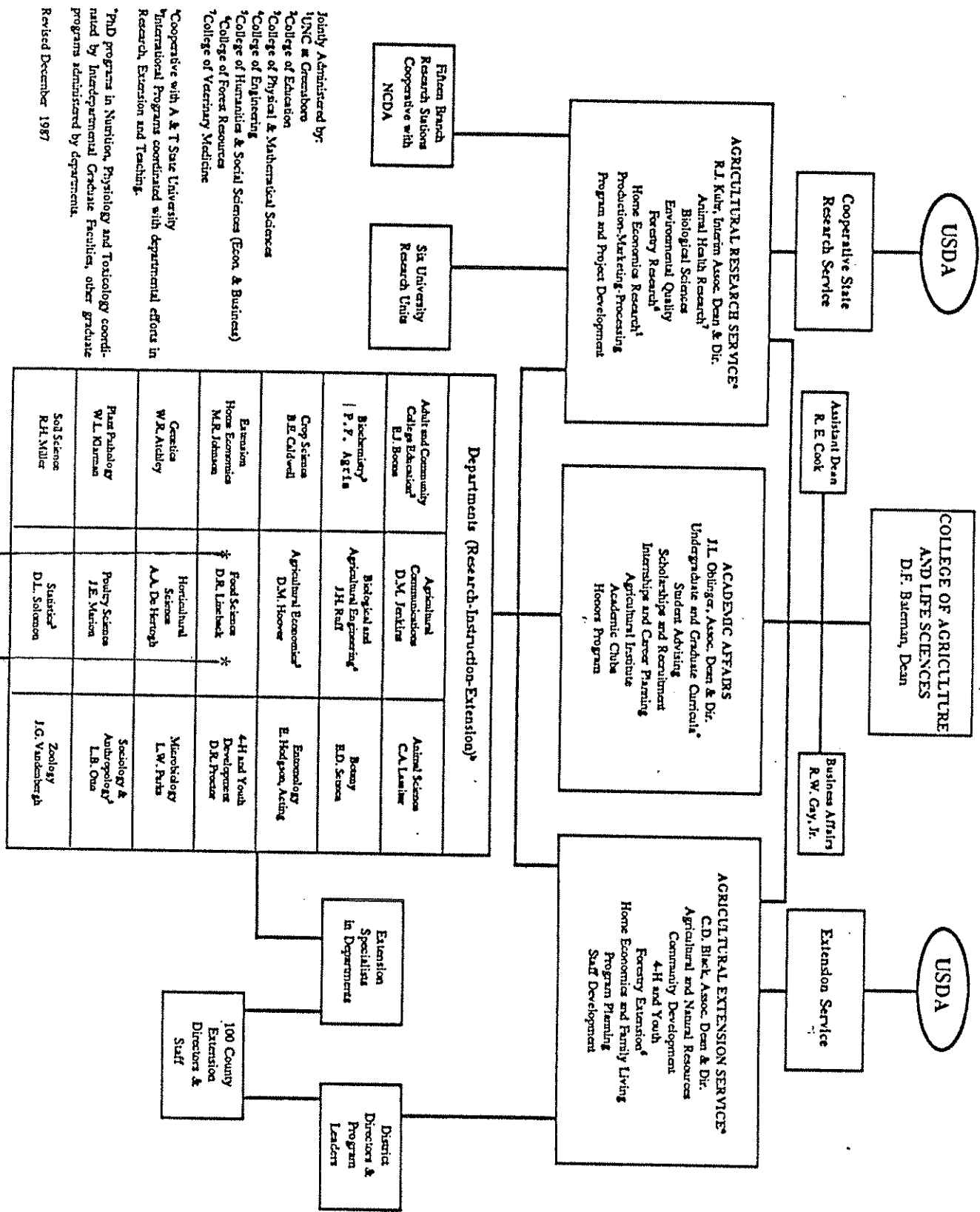
	<u>NDPRB Support</u>	<u>Industry Support</u>	<u>Total</u>
First Year	\$400,000	176,536 ^a	\$576,536
Second Year	400,000	176,536	576,536
Third Year	400,000	176,536	576,536
Fourth Year	400,000	176,536	576,536

^aIncludes funding from North Carolina Dairy Foundation (\$90,000); Biotechnology Group, Miles Laboratories, Inc., (\$25,000), Stauffer Chemical Co. (\$933), and the Southeast United Dairy Industry Association (\$20,000).

Estimated Budget (NDPRB Funds):

	<u>Research Projects</u>	<u>Travel</u>	<u>Administrative Costs</u>	<u>Total</u>
First year	\$375,000	5,000	20,000	\$400,000
Second Year	375,000	5,000	20,000	400,000
Third Year	375,000	5,000	20,000	400,000
Fourth Year	375,000	5,000	20,000	400,000
Fifth Year	375,000	5,000	20,000	400,000

ORGANIZATIONAL CHART



Jointly Administered by:
¹UNC at Greensboro
²College of Education
³College of Physical & Mathematical Sciences
⁴College of Engineering
⁵College of Humanities & Social Sciences (Econ. & Business)
⁶College of Forest Resources
⁷College of Veterinary Medicine

⁸Cooperative with A & T State University
⁹Interdepartmental Programs coordinated with departmental efforts in Research, Extension and Teaching.

¹⁰PhD programs in Nutrition, Physiology and Toxicology coordinated by Interdepartmental Graduate Facilities, other graduate programs administered by departments.

Revised December 1987

Southeast Dairy Foods Research Center

Center for Aseptic Processing and Packaging Studies

SOUTHEAST DAIRY FOODS RESEARCH CENTER

1988

<u>General Project Areas:</u>	<u>Budget</u>
1. Development and characterization of immobilized protein, enzyme, and cell systems for processing of dairy foods.	\$45,000
2. Application of genetic technologies for modification, improvement, and diversification of lactic acid bacteria used in dairy products and processes.	\$60,000
3. Characterization of preservative and sanitation processes on bacterial spores and microorganisms and definition of alternative systems for application to dairy foods.	\$40,000
4. Determination of the effects of processing and storage on the functional properties of milk constituents.	\$95,000
5. Characterization of thermal processes and assessment of design factors.	\$40,000
6. Utilization of milk concentrated/fractionated by membrane processing to develop frozen dairy products and fermented dairy foods of acceptable quality, shelf-life, and sensory characteristics.	\$30,000
7. Evaluation of the functional effects and consumer acceptability of alternative ingredients (sweeteners, enzymes, modified milk components) in formulated dairy products.	\$25,000
8. Development, evaluation, and implementation of sampling schemes and predictive methods to assess dairy product quality, shelf-life and safety.	\$40,000
Research Expenditures <i>(Sponsored proposals)</i>	\$375,000
Travel	5,000
Administrative Costs <i>St. exp. 10,000</i> <i>Supplies 10,000</i>	<u>20,000</u>
Total	\$400,000

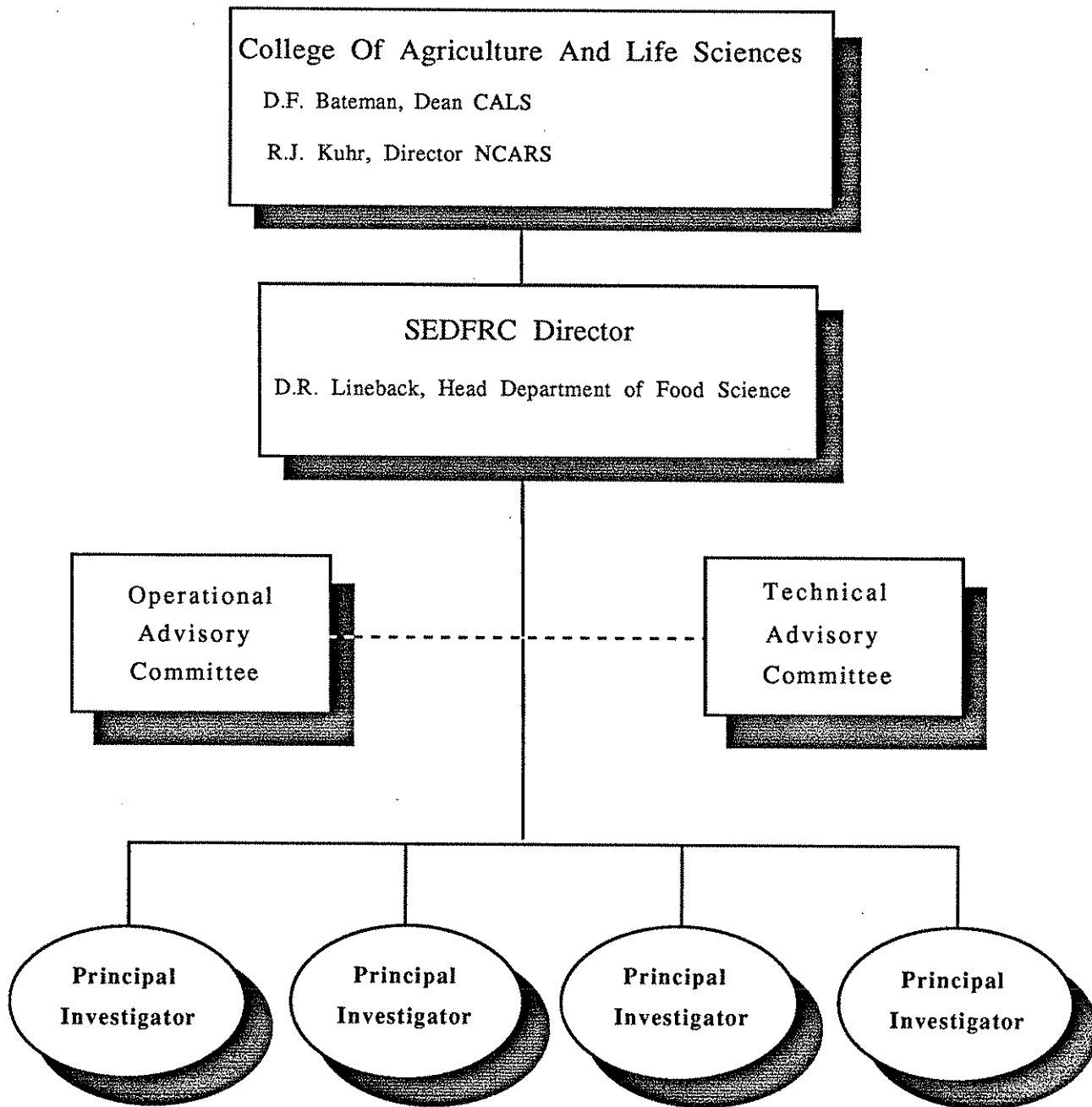


Figure 1. Administrative Structure