

PRICE \$1.00

SURVEY
OF
FOOD AND NUTRITION RESEARCH
IN
THE UNITED STATES
1947

FOOD AND NUTRITION BOARD

NATIONAL RESEARCH COUNCIL

E R R A T A

<u>Project</u>	<u>Organization</u>	<u>Supporting Organization</u>
P 531, 825	3990 instead of 3995	
P 936		4040C(2) instead of 90
P 1134	1580 Q " 1580 DD	3050 A " 3070
P 1528-31	560 " 600 A	
C 637	3530 " 3525	
T 349	2200 " 2300	
T 516	1020 " 1030	
B 17	870 " 80	
B 216	600 " 6000	
Ps 97	2745 " 1745	

Psychology title page should follow page 158

**SURVEY OF FOOD AND NUTRITION RESEARCH
IN THE UNITED STATES**

1947

**A Compilation of Research Pertaining to Foods and Nutrition
in Academic, Governmental, and Industrial Laboratories**

by

**The Committee on Survey of Food and Nutrition Research
of the Food and Nutrition Board
with the support of
The Committee on Food Research
of the Quartermaster Food and Container Institute
for the Armed Forces**

**NATIONAL RESEARCH COUNCIL
June 1948**

FOREWORD

This survey of active research pertaining to foods and nutrition in the United States was undertaken by the National Research Council upon the request of and with financial support of the Committee on Food Research of the Quartermaster Food and Container Institute for the Armed Forces.

Full responsibility for the content of the present report is assumed by the Committee on Survey of Food and Nutrition Research of the Food and Nutrition Board. It should not be inferred that the report bears the indorsement of the War Department.

The classification and compilation of the information received was carried out by Mrs. Mildred S. Ragan. Acknowledgment is made to Mrs. Myrtle Walker, Mrs. Elizabeth Lee, Miss Marjorie Boone, Mrs. Jeanette Pelcovits, Miss Marjorie Reed, and Mrs. Elizabeth Peterson for faithful cooperation in the detailed work involved.

Acknowledgment is likewise extended to the many individuals, academic institutions, government agencies, members of the food industry, foundations, and others without whose cooperation this report would have been impossible.

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PREFACE

Many times during World War II, scientists working in universities, government agencies, medical schools, private institutions and in the food industry called attention to the need for a comprehensive record, listing the names and addresses of individuals working, or qualified to work, on food and nutrition problems. A similar need was evident in regard to an organized subject matter record of investigative work under way. The value of such information for general use in peacetime had long been recognized, but the need was obviously more critical as the nation was faced with measures incident to efficient action during the war.

The present project was therefore undertaken by the Food and Nutrition Board of the National Research Council, with the advisory assistance and financial aid of the Quartermaster Food and Container Institute for the Armed Forces. Frequent revisions of the report will be necessary to correct changes in address and changes in research activity that are normal to peacetime circumstances.

The great expansion in research activities relative to foods and nutrition preceding and during the war period served to focus attention upon the need for more information regarding work under way in different institutions, where normally there would be little opportunity to avoid unnecessary duplication, both in private and public organizations. Nearly all government agencies and many university type organizations publish records of their research activities, but frequently the compilations are too vague in regard to subject matter and deal too largely with past activities to be of appreciable usefulness to those who are planning research in either public or private research organizations.

Within the food industry, there are competitive aspects to research that make it inadvisable for many organizations to publish detailed accounts of activities, either in accordance with subject matter or on the basis of responsibilities of their personnel. However, the general nature of much industrial research does not need to be restricted, and hence, in practice, is known to the public. In planning the present publication, every effort has been made to protect the wishes of individuals and groups in regard to detailed or confidential information.

There is an obvious service to industrial groups as well as to public institutions in preparing a reference of the kind that is provided in this publication. The relative emphasis currently placed on different areas of research will serve to stimulate increased interest and a sense of confidence in exploring the areas that now receive little attention, in addition to focussing attention upon the areas of greatest concern at the moment. University and government scientists are relatively free to explore areas without regard to immediate applications, and there is a natural desire, in many cases, to extend the frontiers in areas that would not otherwise receive attention. Furthermore, many research organizations are now so extensive and diversified, both in subject matter and in geographic distribution, that it is difficult to keep informed in regard to what is under way in other laboratories within their own organizations, to say nothing of the difficulty of attempting to appraise the entire field of food and nutrition research.

In regard to personnel, a few directories have been available, such as those published by the American Chemical Society, American Institute of Food Technologists, American Public Health Association, Federation of American Societies for Experimental Biology, American Medical Association, American Dietetic Association, and the American Home Economics Association, but these directories have a different basis for selection from that provided in the present publication. This listing is more general as far as training is concerned, and is selective as the basis of personnel now engaged in food and nutrition work, including only those reported as investigators in current research projects. The Office of Scientific Personnel is collecting a more detailed and more diversified record of scientifically trained personnel. Their work is of a different nature than this publication, though their cooperation in the present undertaking has been very helpful.

Suggestions regarding possible improvements in this type of publication will be welcomed, and since frequent revisions are anticipated, changes can be put into effect promptly. The committee realizes that there have been many omissions in the present edition, but there was

unanimous agreement that sufficient material was at hand to justify publication, and further, that sufficient time had been permitted to elapse since requests for information were forwarded to interested organizations. It has been attempted in this first report to list organizations furnishing financial support along with the organization in which the research is being done. Undoubtedly there are unfortunate omissions in this respect and comments will be helpful in determining whether or not this type of information, even though incomplete, should be included in subsequent editions.

The following data provide an approximate summary analysis of the subject matter distribution with the inevitable fallacies of necessity due to any arbitrary classification.

ANALYSIS OF PROJECT DISTRIBUTION IN FOOD AND NUTRITION RESEARCH

Number of organizations contributing ---606
Personnel (investigators) -----5000

Other diseases ----- 104
Total ----- 319

Number of projects

Physiology ----- 1603
Chemistry ----- 1183
Technology ----- 599
Economics ----- 351
Bacteriology ----- 245
Psychology ----- 105
Total ----- 4086

Nutrition Surveys

Food consumption ----- 17
Nutritional status ----- 37
Nutritional status (children) ----- 22
Total ----- 76

Physiology of Farm Animals ----- 213

PHYSIOLOGY (Including animal and plant)

Dietary Requirements

Animal ----- 30
Human ----- 21
In pregnancy and lactation ----- 23
Infants and children ----- 13
Special cases ----- 26
Total ----- 113

Physiology of Plants

Plant breeding ----- 82
Plant disease ----- 26
General ----- 14
Total ----- 122

CHEMISTRY

Chemistry of Nutrients ----- 241

Food Composition and Nutritive Value--- 321

Digestion ----- 22

Metabolism

Amino acids ----- 37
Carbohydrates ----- 48
Enzymes ----- 13
Fats and fatty acids ----- 40
General ----- 35
Hormones ----- 34
Hydrolyzates ----- 34
Infants and children ----- 21
Lipotropic factors ----- 14
Minerals ----- 53
Protein ----- 35
Protein evaluation ----- 54
Vitamins (all) ----- 130
Total ----- 548

Change in Composition

Due to soil ----- 28
canning ----- 29
cooking ----- 52
dehydrating ----- 43
diet of animal ----- 34
environment ----- 31
freezing ----- 27
frozen storage ----- 51
genetics ----- 54
packaging ----- 9
processing ----- 42
storage ----- 133
Total ----- 533

Tissues ----- 58

Interrelationships ----- 78

Deficiencies ----- 68

Diseases (with 6 or more listings)

Anemia ----- 8
Cancers and tumors ----- 42
Cardiovascular ----- 23
Dental and oral ----- 31
Diabetes ----- 20
Dystrophy ----- 9
Infection ----- 14
Liver disease ----- 19
Nephrosis ----- 7
Nervous disorders ----- 7
Toxicity ----- 29
Tuberculosis ----- 6

Enrichment

Minerals ----- 4
Proteins and amino acids ----- 9
Vitamins ----- 21
Total ----- 34

Chemicals and Preservatives in Foods 65

TECHNOLOGY

Equipment and Methods ----- 89

Development of Products

Infant foods ----- 8
Cereal and grain products ----- 42
Dairy products ----- 41
Egg products ----- 4
Fats ----- 14
Fish products ----- 3
Fruit & vegetable products ----- 20
General ----- 4

TECHNOLOGY (Continued)

Meat products	12
Nuts & legumes	17
Sweets, beverages, and miscellaneous	63
Therapeutic products	63
Total	291

Processes for Preserving Foods

Canning	25
Dehydrating	31
Freezing	73
Packaging	98
Total	227

ECONOMICS

<u>Pasture Research</u>	40
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<u>Antibiotics</u>	14
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PSYCHOLOGY

<u>Food Acceptance</u>	52
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Nutrition Education

Publications	31
Community projects	15
Grants & fellowships	7
Total	53

PROJECTS LISTED ACCORDING TO NUTRIENTS**Proteins and Amino Acids**

Chemistry	51
Deficiencies	6
Enrichment	9
In foods	50
Losses in processing	5

Metabolism	169
Requirements	31
Total	321

Fats and Fatty Acids

Chemistry	28
Metabolism	42
In foods	13
Requirements	2
Total	85

Lipotropic Factors**Carbohydrates**

Chemistry	41
In foods	17
Metabolism	47
Total	105

Minerals

Chemistry	1
Deficiencies (General 7, P 1, Ca 4, Fe 4, trace 1, Mn 1)	18
Enrichment	4
Losses in processing	9
Metabolism (P 8, Ca 13, Fe 11, S 2, Na 1, K 3, I 4, trace 6)	48
Requirements (P 3, Ca 5, Mg 2, Cu 2, Fe 8, trace 9)	29
Total	109

Vitamins (General)

Chemistry	10
Deficiencies	11
Enrichment	11
In foods	35
Losses	45
Metabolism	23
Requirements	15
Total	150

Vitamin A & Carotene

Chemistry	22
Deficiencies	6
Enrichment	1
In foods	39
Losses	23
Metabolism	38
Requirements	14
Total	143

Vitamin B Complex

Chemistry	3
Deficiencies	3
Enrichment	8
In foods	7
Losses	13
Metabolism	37
Requirements	13
Total	84

Thiamine

Chemistry	2
Deficiencies	5
Enrichment	4
In foods	8
Losses	24

PROJECTS LISTED ACCORDING TO NUTRIENTS (Continued)

Metabolism -----	5
Requirements -----	4
Total -----	52

Riboflavin

Chemistry -----	4
Deficiencies -----	7
In foods -----	8
Losses -----	13
Metabolism -----	9
Requirements -----	8
Total -----	49

Niacin

Chemistry -----	2
Deficiencies -----	5
In foods -----	16
Losses -----	10
Metabolism -----	4
Requirements -----	6
Total -----	43

Pyridoxine

Chemistry -----	1
In foods -----	1
Requirements -----	1
Total -----	3

Pantothenic Acid

Chemistry -----	1
Deficiencies -----	5
In foods -----	1
Losses -----	1
Metabolism -----	2
Requirements -----	3
Total -----	13

Choline

Deficiencies -----	6
Metabolism -----	7
Total -----	13

P.A.B.

Metabolism -----	1
------------------	---

Inositol

Chemistry -----	2
-----------------	---

Biotin

Chemistry -----	4
Deficiencies -----	3
Metabolism -----	7
Total -----	14

Folic Acid

Chemistry -----	10
Deficiencies -----	4
Losses -----	1
Metabolism -----	10
Total -----	25

Ascorbic Acid

Chemistry -----	3
Deficiencies -----	3
In foods -----	29
Losses -----	22
Metabolism -----	16
Requirements -----	4
Total -----	77

Vitamin D

Chemistry -----	4
In foods -----	5
Metabolism -----	12
Requirements -----	4
Total -----	25

Vitamin E

Chemistry -----	2
Deficiencies -----	5
In foods -----	5
Metabolism -----	10
Requirements -----	2
Total -----	24

Vitamin K

Metabolism -----	3
------------------	---

Rutin and Related Materials

Chemistry -----	2
Deficiencies -----	1
In foods -----	1
Metabolism -----	4
Total -----	8

Unidentified Factors

Chemistry -----	11
In foods -----	2
Metabolism -----	14
Requirements -----	7
Total -----	34

Calories

Requirements -----	8
--------------------	---

Enzymes

Chemistry -----	27
In foods -----	5
Losses -----	9
Metabolism -----	13
Total -----	54

Hormones

Chemistry -----	8
Feeding -----	21
Metabolism -----	34
Total -----	63

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