

tive processes, coordination of production with nutrition needs and with processing procedures, further exploration of methods of preservation, and evaluation of germ plasm banks.

Methodology

Application of the following criteria will aid in developing standardized methods for planning and carrying out nutritional research:

The methods should provide discriminating measures of the effects of nutritional stress.

They should be amenable to field application on representative stratified samples of populations selected for study.

They should yield a maximum of information with minimum disturbance of the groups investigated.

They should be tested and validated in institutions already well equipped and experienced in this work.

They should, whenever human volunteers and experimentation are involved, be consistent with established codes governing the use of human subjects.

USE AND MANAGEMENT OF BIOLOGICAL RESOURCES

Biological Control

The International Biological Program provides an opportunity to promote ecological management as a principal method of pest control, with emphasis on the use of predators, parasites, and pathogens. This method of pest control can succeed only through international cooperation, because the discovery and introduction of useful natural enemies of pests depend on collaborative endeavor. Emphasis on ecological methods will center about maximal use of natural enemies but will include various forms of habitat management or modification, use of resistant hosts, and other genetically based techniques. Proposed research should seek to establish approaches that will be applicable internationally, and should be directed to the solution of specific problems of broad concern.

Plant Gene Pools

By its very nature the process of accumulating a plant gene pool is an international venture and requires intercountry cooperation to be effective.

United States agriculture, with but little reservoir of native germ plasm, already is greatly indebted to outside sources. If effective breeding programs are to continue, the flow of germ plasm must continue. Wild progenitors of major crops, primitive populations, and wild relatives of crop species provide a wealth of genetic material from which to draw new qualities of adaptation to temperature, day length, nutrition, and resistance to pests and diseases. Thus the United States needs continually to procure, assess, and preserve germ plasm for future incorporation into crop varieties. To this end there has been established a National Seed Storage Laboratory at Fort Collins, Colo. The more than 52,000 accessions now held there are largely improved varieties, breeding lines, and plant introductions.

There is additional specific need to locate, describe, and preserve in similar manner (1) important genetic marker collections, (2) lines of particularly high quality that might otherwise be lost in the tendency to emphasize quantity production, and (3) other endangered materials. Biologists are encouraged to make collections available for preservation, and the Agricultural Research Service, in cooperation with other agencies and biological societies, should document these private collections and bring them into the laboratory. A working group on the preservation of genetic stocks, to advise on the merits of individual collections and on techniques of repropagation, would be of benefit.

Animal Gene Pools

In view of the many restrictions to movement of such genetic material as semen and ova from one country to another, and the risks involved, comprehensive study of blood lines is being undertaken as a means of initially fixing the location of valuable stocks and providing a base for future use of these resources. Seventeen countries have expressed an interest and are participating in this study.