

Potatoes are good for you but how to keep them that way?

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At the end of the summer the hill farmers of the Andean region of South America spread their potato crop on the open ground and leave it there, exposed to the sun by day and the frost by night. Occasionally they trample on it to help squeeze out the moisture, and at the end of two-to-three weeks they have something called chuno — a dehydrated potato product that could well be the original “instant potato”.

The making of chuno is just one of a number of traditional techniques for preserving potatoes that is currently being studied by food scientists and technicians from the International Potato Centre in Peru. Their aim: to find a simple, economical method of processing potatoes in order to make them available as a valuable additional food source for the developing countries of the lowland tropics. Established five years ago, the Centre has two principal objectives — to increase the yielding capacity and efficiency of production in the developing countries where the potato is already being grown, and secondly to increase the ecological region of adaptability of the potato, including the heavily populated lowland tropical regions. One of its first activities was to establish an outreach program, bringing together a network of regional centres to gather information, to spread the results of research and to provide training opportunities for young scientists.

Such a network is well justified. The potato ranks along with wheat, rice and maize as one of the world's four major food crops. However, it owes this prominent position mainly to its popularity and intensive development in the northern temperate zone, and plays only a minor role as a source of food in the tropics.

Another of the Centre's early accomplishments has been to destroy many of the common myths about the potato — regarded by many as a source of carbohydrates and very little else. In fact, say the Centre's researchers, comparisons have shown that the potato consistently produces a higher average yield of calories, proteins and many vitamins and minerals than the other major cereal, root and tuber crops. Furthermore, say the CIP scientists, the quality of potato protein is generally superior to many other plant proteins, and it seems likely there is sufficient genetic variability to selectively develop varieties with both improved protein quality and increased protein content.

At present about half the people living in the developing countries of the tropics live in areas where the potato grows well. It may also be possible to develop new varieties that will adapt to the lowland tropical areas where at present potatoes do not perform well. This would add enormously to the potato's potential as a much-needed additional source of food in the tropical world.

These facts, says the CIP's Director General, Dr R. L. Sawyer, strongly argue for support of a concerted effort to increase potato production in the developing countries of the tropical world.

There is one major limiting factor, however, and that is the nature of the potato itself. Even in temperate zones the problems of storing, transporting and marketing potatoes are considerable, and result in great seasonal fluctuations in price. In the hotter, humid tropical lowlands these problems become almost insurmountable, making the potato a luxury item in such regions.

Solutions such as the construction of refrigerated storage or expensive Western-style dehydration plants would do little to help the subsistence farmer or the small rural community. What is needed is an inexpensive, practical, low-energy method for dehydrating fresh potatoes in order to ensure a uniform year round supply.

This, in essence, is the aim of the new project being undertaken by the CIP with the support of the IDRC. Over the next two years an all-out effort will be made to find a potato processing method that meets these requirements, without reducing the potato's nutritional value, and which can be adapted from the village-level operation up to a larger-scale commercial production.

Which is where chuno comes into the picture. The Centre's scientists began by examining the traditional methods used by the hill farmers. Unfortunately, while the method of producing chuno is very efficient in preserving potatoes over long periods, the process destroys much of the potato's nutrient value, negating one of the project's basic criteria. This also applies to other traditional products so far tested.

The use of natural elements such as solar energy will be thoroughly investigated, however, perhaps for use both in drying the potatoes, and in heating water to blanch them in order to prevent discoloration. Another of the project's criteria is that the final product must be as acceptable to consumers as are fresh potatoes.

The development of a “super potato” that can survive and flourish in tropical soil conditions will not solve the world's food problems — but it will help. Dr Sawyer puts it this way: “The pressures to feed the rapidly increasing population of the tropical world are already serious and will become more critical. In the search for crops and technology to meet this problem, the potato deserves careful consideration.

“The problems of storing and transporting potatoes, together with unstable annual supply and price structures, must not continue to be the unresolved factors that are currently limiting potato production capacities in developing countries.”