Advance Warning System

Concept Note

Farming is a risky business. The elements that impact on the outcome of the crop are long and unpredictable. Floods, frost and droughts, pests and diseases, and market demands are classic headaches for the farmers. When all the elements work positively towards a bumper crop, the farmer fears a production glut and a disastrous price for the crop. What disaster beholds one farmer in one region (frost) is a boon for another in another place (increase demand due to the shortages). Even climate change is unpredictable. The continual increase in global temperature limits the production in cool climes but opens up cultivation areas in previously frosty grounds.

Agriculture economists argue that much of the problems of the farm could be mitigated if the farmer has sufficient warning and time to take preventive steps to counteract the incursions. This is the rationale of the advance warning system, others call it the early warning system. It is all about giving the necessary information and data of sufficient accuracy to the farmer that he could predict the possible outcome and take precautionary steps to change the course of the outcome. Some disasters cannot be overcome. If a flood is looming upriver, the best thing to do is to harvest the crop much earlier (if possible) or not to sow the seeds. Monsoon rains bring flood waters to the fields every year. How beneficial the flood waters are, would depend on how intense the monsoon is in that year, and if the weather forecast is accurate enough, the farmer should take the right mitigating step. In the old days, farmers could only tell of an intense monsoon by looking at the darkening clouds rolling across the land, and more often it was too late to do anything, but to save himself and his family, and sometimes not even so.

Almost any piece of information is useful information if the farmer knows how to utilize it. And the more informed the farmer is the more he could assimilate the information, intelligence or data for his benefit. In a competitive business, such advanced information not just helps him ride over the disasters, but also take advantage of the eventual market condition.

What aspects of warning do the farmer needs?

The list below does not carry any priority weight. All the aspects are important; it depends on the intensity of the damage and the value of the crop at that time.

- Pest and disease emergence
- Change in the weather condition
- Flood, frost and drought warning
- Production (and market) condition
- Reminder of annual functions
- Market intelligence

All of these aspects are interrelated. They have a cause and effect function. Changes in the weather condition (or micro changes in the environment or the ecology) will affect the life cycles of insect pests

and thereby a reduction or increase of their population or damage ferocity. Having a good understanding of the life cycle of the pest is necessary. Many of the crop diseases are rain and temperature related. Microscopic plant pests and weeds are also botanical plants and it is not surprising that when conditions are favorable they should also thrive well. It is necessary for the farmer to understand how plant diseases can damage the crop and what causes them to emerge substantially. Under a balanced ecological state there is a dynamic emergence and subsistence of pests and diseases, but they are at 'ecological competitive limits' that do not cause major economic damage to the crop. A change in temperature, for example, could upset this balance and impact of the behavior and population of the pest.

Information of weather conditions includes rainfall data, temperature, humidity, sunshine hours, wind speed and frost time. All of these factors will have an impact on the crop production and the quality of the crop harvested.

Production and market conditions are related on the basis of supply and demand. Having advanced knowledge of production will give the farmer the expected market demand for his crop. On the reverse, having known the current market condition the farmer would know what crop to grow in the next season. But this does not always work out well. It is necessary that the farmer has the market condition information with sufficient timeliness; otherwise the lag time in growing the crop may not achieve the desired market demand for the crop.

Some functions are known every year. For example, during the Spring Festival in China, every Chinese household will purchase Mandarin Oranges as part of traditional practice. It does not make sense for the Mandarin orange farmer not to time his production for the festival. Information of demand conditions will assist farmers to produce off-season crops that cater to niche markets.

Market intelligence differs from market information. The latter is more often what that has happened and data gotten after the fact. These would include sales data of previous seasons, perhaps the most current numbers in the market, or current shipments that have been put into sail – the figures are definite and are collated by the monitoring unit. The benefits of these information can be used in analysis of the market as it has performed and wisdom can be derived what strategies could be taken next time.

Market intelligence is 'all of the other information of general interest to the trade'. Such information may be substantiated to be fact or not (and not widely known), it may not have happened yet, perhaps a rumor or a planned program that is about to be launched. There is a risk to rely on market intelligence obviously. But many marketers have used market intelligence in their marketing strategies. The trick to working with market intelligence is how to interpret and connect the information useful to the planned strategy.

Planning farm activities and making decisions with advanced information

All information can be utilized by the farmer to benefit his farm production and the marketing programs. The farmer could make his decisions for his daily farm activities based on the access to such credible and timely information. It is therefore necessary that the information is credible and noteworthy.

There are two levels of information that the farmer will access in assisting his making decisions for his farm activities. The first levels are general **macro-information** (or intelligence) that would affect the

overall production and market sales of the crop. The farmer would decide what crop to grow (cereals), how much land should he sow on and when exactly should he sow the seeds. These decisions will impact on the production of the crop. At the second level; it is more specific **micro-information** the farmer needs to know, and such information relates to achieving the quality of the crop. The bulk of such information comes from the observation and monitoring of the crop, the trees and the farm. The micro-weather condition of the farm area is most important information for the farmer to undertake specific farm activities. A check of the soil moisture will confirm whether irrigation should be made and how much irrigation to apply. Same goes to observations of the presence of pests. Some of this information may overlap with IPM and ICM monitoring activities, but the overall monitoring and gathering of information of the farm area is necessary before the farmer takes the next course of action. This is where the 'gentleman farmer' has the greatest failing because he does not personally oversee the actual condition of the farm, the trees or the crop, but to rely on a desktop calendar farm program, as the engineer would for the manufacturing factory.

Dispensing quality information

'To develop an effective advance warning system, it needs to strengthen crop forecasting system to improve timeliness and reliability of information. It also needs to develop a coordinated and consistent approach in monitoring crop forecast' (FAO). Market and information transparency is vital for the efficient operation of the warning system. Easy and free access is necessary. The organization dispensing the information should not have any hint of 'conflict of interest' in the work and the farmers (the clients) must have full confidence and trust of the organization undertaking the task.

How much better could a public broadcasting system (PBS) provide information to a farmer than an individual farm extension officer?

Obviously, the broadcasting can reach more farmers and more quickly. But of course the broadcasting lacks the individual and personal interaction with the farmer.

A PBS is a very effective tool in the advance warning system:

- Farmers are less skeptical to the broadcasted information than to the extension officer.
- Public broadcast information is often generalized in nature. This can be improved by writing more relevant and specific information dispensing programs dealing with specific farmers needs.
- PBS can also develop interactive 2-way dialogue with the farmers. This will give the farmers better linkages to the programmers and toward other farmers, and lays the path to developing a network from the dialogue. Farmers in the network would be able to leverage on each other for support, for comfort, for consensus and collaboration.
- The PBS is a tool that extension officers should utilize to deliver the knowledge and information to the farmers, but there must be consistency in the message and the objectives of the delivery.
- The stakeholder networks like the Growers Association, Processors and the Exporters Association could also utilize the PBS as their vanguard to the farmers.

- Taking the broad view of what the PBS could be doing, it is inadvertently also the marketing information system, farm extension system and the advance warning system rolled into one. This may be true, but one must keep remembering that the PBS is the tool for these other systems and not the system itself. Extension officers shall write the training and information programs for the PBS and will answer the questions posted in the 2-way dialogue with the farmers. The Marketing Information organization shall feed the information and market intelligence to the PBS for dissemination. The Advance Warning System is not an entity (organization) itself, but is the sum of all the work done by all the participants.

Developing the Public Broadcasting System

The Sohni Darthi Radio Channel has a regular program 'Zarat Ki Baat' (Talk on Agriculture). This is one possibility of the COP program to collaborate with the radio channel.

Some of the areas of work that could be done would include;

- Researchers from the Institutes are the Resource Persons writing serial programs on farm cultivations. These programs could also be in line with the programs of the Farmers Field School. The programs are organized as in a course structure of specific cultivation subjects. The broadcasting program has a 2-way interaction managed by the Researcher and the broadcaster.
- The radio station will broadcast information relevant for the Advance Warning System (including market information and market intelligence).

Managing the Advance Warning System

The collection of information, monitoring the factors and the analysis of data collected from the various resources constitute the basic course of the system. Weather information and forecast are available in the internet, and the data are sufficiently updated. The local meteorological department will be consulted. There is a need to work closely with the marketing organization of the private sector (exporter and retailer associations) and the public sector (PHDEC). Any one of these stakeholders could stand up to champion as implementer of the Advance Warning System.

For the farm level of advance warning system, the IE shall develop the monitoring system with the Researchers and first put to practice with the selected participant farmers of the COP project, *Farm Tracking and Early Warning System.*

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