

URGENTLY NEEDED:

Innovations in the post-harvest sector

by Ir. Bart van Assen

Although Indonesia's agro-industrial sector is more alive than ever, it experiences quantitative and qualitative losses between harvest and (foreign) end-consumer that – added up – exceed 50 percent. The lion's share of these losses is due to improper handling in the post-harvest phase. Ir Bart van Assen takes a closer look at the problems and indicates the need for an independent party that promotes innovations in the post-harvest sector.

It is difficult to quantify the financial loss due to the many hidden losses; most produce is only graded after it arrives at the market. Yet estimates in many studies exceed 50 percent, and large spatial differences in prices (up to 10 times) are common. For example, almost 20 percent of fresh paddy is estimated to be lost during harvesting, threshing and on-farm drying due to archaic practices. Transport damages are estimated at 20 percent at the village market, and 20 percent at the consumer market due to poor handling, packaging and transportation facilities. The quality of Indonesian cabbage on the Singapore market is low, as more than 30 percent of the product is wasted and unsold due to improper packaging and transportation.


Understanding

The main cause of these losses is without doubt the lack of understanding that agricultural produce is a living organism that requires detailed care. An optimistic scenario for the vegetables you ate today is as follows: plucked a little unripe; it lay in the burning sun for several hours waiting for the open

truck of the middlemen; on the truck it then nearly crushed to death by its fellow travellers while suffocating from exhaust fumes and heat exposure for another eight to twelve hours; after being dumped in some dirty water to regain some of its lost liquid – in the mean time soaking in traces of poisonous agro-chemicals and industrial compounds – it was then transported to the shop or market where you bought it. Let the more pessimistic scenarios linger in the back of your mind the next time you buy any agricultural produce.

Hygiene

Fortunately, capital innovations in the post-harvest sector can be achieved without extensive research and are relatively cheap. The foremost factor in dealing with agricultural produce is increased hygiene, and improving this is ridiculously simple. Indonesian clove, as an example, is now sun-dried abandoned at the ground level, often on a roadside for easy access. This of course is an informal invitation for organic and mechanic creatures alike to leave their signatures on the drying product. Thus, European importers value Indonesian



clove less because of the high level of contamination with chicken manure, vehicle exhaust particles and road dirt. By drying agro-industrial commodities under more controlled condition (like on raised tables with gauze covers) quality and value will increase strongly.

Logistics

Another major factor is the need for improved logistics, again a rather simple innovation. In the palm oil sector, as a case in point, quality is closely related to delay between harvest and processing. Palm oil fruit should be processed within four to eight hours after harvest to avoid oxidation, but total transit times often reach fourteen hours. Improved logistics between plantation and factory have proven to increase the quality of palm oil significantly. In addition, some very simple logistical adjustments at factory level have achieved major added value.

Storage and transport

Closely related to improved logistics is controlled storage and transport, a more costly but very rewarding innovation. Here potato is a good example as its post-harvest scenario is

similar to the vegetables described above. It is an agricultural product that dissimilates when exposed to light, resulting in rapidly increasing sugar content and decreasing starch content. These changes are unfavourable for the processing industry, and thus result in a lower value of Indonesian potato. However, If potato is placed in a cool and well ventilated shaded environ right after harvest, dissimilation will be strongly reduced. It can then even be washed to remove soil and contamination as it prevents infections and dehydration by forming a protective cork-like layer.

However, two major bottlenecks hamper innovations as described above: ineffective legal protection of innovations and lack of direct communication between the different actors. The unscrupulous copying of successful innovations gives local companies too little advantage to justify the necessary time and money to continue innovations. Hampered communication between farmer and industry results in a confusion of feasible and required characteristics and little incentive for improvement. In addition, the overly scientific character of the local R&D

agencies makes dissemination of their extensive practical knowledge on post-harvest handling nearly impossible; in fact many farmers and industries distrust the proposals from these agencies. Last but not least middlemen add to the confusion by withholding information and falsifying data.

Independent party

Although only few examples are mentioned above, the myriad examples available indicate the need for an independent party that promotes such innovations. This party must survey and promote practical and tangible innovations that strongly reduce losses for any covered commodity. Furthermore it must disseminate these innovations to farmers and industries and moderate between the farmer, agro-industry and R&D agencies. It will then fill a gap that greatly hampers the development of Indonesia's post-harvest sector. Clearly such an organization will have little trouble in acquiring abundant project funding from various international donors as well as sources within Indonesia. ■

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