



# Philippine Onion Farmers Profit from IPM Technology

*“I am a curious farmer. I observe. I listen to agricultural technicians and scientists and copy what I think is good. I always tell my tenants, don't worry about the low price of onions. If we can increase our yield and reduce our production cost, we can still make a profit, and with the use of IPM CRSP technologies, this will surely happen”* (stated by Winston Wy, a medical doctor-farmer from Talavera, Nueva Ecija when talking about about the training of onion farmers in his village). Yes, Philippine onion farmers now have fewer “sick” onions due to disease, fewer weeds in their fields, and reduced populations of destructive armyworms. They are getting higher yields and are

*higher and the quality of onions better. Farmers are now aware that sustainability is the way to go.”*



Onions are one of the most important vegetable crops in the Philippines. There are about 12,000 ha planted to onion (after rice) in Nueva Ecija and Ilocos regions of the Philippines. Pests are a major constraint to onion production in the Philippines. The need for IPM-based practices in onion production is critical to increase farmer incomes as well as to ensure the production of safe, pesticide- and pest-free onions for local consumers and the export market. IPM aims to manage pests -- such as insects, diseases, weeds and animals -- by combining physical, biological and chemical tactics that are safe, profitable and environmentally compatible.

making more pesos from their onions, but use less pesticides. This feat has been achieved through the development of onion Integrated Pest Management (IPM) technology by scientists, and the transfer of this technology to farmers. Technologies developed by the IPM CRSP, and adopted by Philippine farmers have proven highly successful. Dulce Gozon, President of the National Onion Growers Cooperative and Marketing Association, (NOGROCOMA), says about the onion IPM program: *“Now our productivity is*

The IPM CRSP is a United States Agency for International Development (USAID)- funded project which consists of a consortium of scientists from U.S. universities and host country institutions

IPM CRSP Progress

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working collaboratively to (1) reduce agricultural losses due to pests; (2) reduce environmental contamination by pesticides, and (3) increase food production and farmer income through the development and transfer of improved IPM technologies. In the Philippines, the U.S. universities of Ohio State, Virginia Tech, and Penn State, and the international ag centers, the Asian Vegetable Research and Development Center (AVRDC) in Taiwan and the International Rice Research Institute (IRRI) in the Philippines work collaboratively with PhilRice, Central Luzon State University, the University of the Philippines Los Baños, Leyte State University, National Crop Protection Center (NCPC), and NOGROCOMA to develop onion IPM technology and transfer the technology to farmers. This consortium is dedicated to the goals of providing nutritious and safe food for millions of Filipinos and helping farmers



Onions damaged by the cutworm, *Spodoptera litura*

to enter vegetable export markets. Details concerning the IPM CRSP and photos of the Philippines site activities can be found at <http://www.ag.vt.edu/ipmcrsp/index.asp/>.

A major constraint in onion production in the Philippines has been a lack of IPM strategies to replace pesticide-reliant tactics and the failure to adopt the IPM strategies developed. The IPM CRSP onion program has been able to overcome both of these constraints by developing IPM technologies and successfully transferring them to onion farmers. The IPM technologies have been incorporated into an integrated crop management (ICM) program, which includes sustainable and economical crop production practices. The specific IPM technologies developed include (1) identification of new diseases and insect pests, e.g., onion root knot nematode, anthracnose disease, and armyworm, (2) economical insect management strategies, (3) minimum input weed management strategies, (4) solving the sick onion problem, and (5) management of onion diseases.

Pheromones, which mimic the scent of the opposite sex, are being used in traps to control the cutworms which devour onion plants. Farmer, Marcelino Callos had this to say about the pheromone traps: “*Kung ang bong barangay ay gagamit nito, maaring sa katagalan paunti na rin ang mga cutworm na kumakain sa aming sibuyas*”. Or, “if all farmers in the village use the pheromone traps, it won’t be long before cutworms that feed on our onions will be diminished.”



Sex pheromone trap with male cutworm moths

## Impact

The IPM CRSP- Philippines program has strongly promoted the transfer of onion IPM technology to farmers. Efforts include: 1) training courses by PhilRice Training Division with IPM CRSP scientists as resource persons for agricultural technicians (training of trainers – 120 technicians per year since 2000); 2) training of farmers by the technicians (240 farmers in four locations in Muslim Mindanao per year); 3) training of 200 NOGROCOMA farmers on demo farms; some have undergone training on how to mass produce natural biological control agents for use against insect pests; 4) village-level integration activity in which IPM CRSP technology is compared to the farmer’s practice in farmer cooperator fields (40 cooperators); 5) preparation of IPM training manuals, technical bulletins and field guides; 6) field days, workshops, and meetings with farmers and agricultural extension workers (four field days attended by 400 farmers last year); 7) participatory appraisal in preparation for expansion of activities to north and central Luzon; 8) semi-technical and technical publications in local and international journals; and 9) oral and poster presentations in local and international conferences.

## Technology Transfer

Dr. Santiago R. Obien, former Director of PhilRice said this about the impact of the IPM program in onions: *“With the IPM CRSP, yields of onions have increased and production costs reduced in those areas that adopted technologies. More farmers adopting them will help increase yield average to above 10 t/ha to 20 t/ha.”* The onion IPM program has reduced pesticide use for adopters resulting in health-related, environmental, and economic benefits (*see graph*). Economic impact estimates for onion IPM indicate that the adoption of IPM CRSP technologies results in a 30% reduction in pesticide sprays and input costs and a 50% decrease in herbicide use and hand weeding activities, along with an estimated average yield increase of 10%. Farmers who have adopted the practices have increased their net incomes by approximately 25%. Members of the NOGROCOMA, the country’s largest onion marketing cooperative, are adopting these technologies in several villages near San Jose and in other parts of the country. NOGROCOMA markets a significant share of the large yellow (Granex) onions in the Philippines.

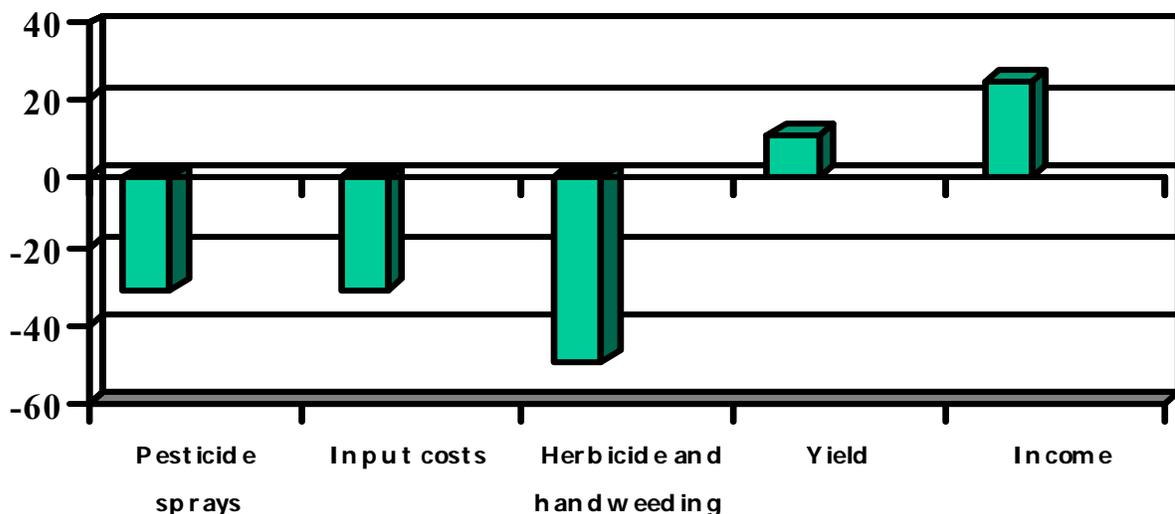
*“Our farmers have learned the use of microbials to lessen insect pest incidence, the right time to use pesticides to reduce their use, and the use of organic materials and other IPM practices. The use of the “stale seedbed” technique, for example, enables our farmers to reduce the cost of hand weeding and herbicides by more*



Dulce Gozon, NOGROCOMA president observing pheromone trap

*than 50%. Our farmers are more prepared now, after 7 years of IPM research, to compete in the world market, given the competition from China, Thailand, and other countries. Our productivity is higher and the quality of the onions is better. The IPM CRSP program is a long-term project whose benefits will be felt in the long haul. Farmers are now more aware that sustainability is the way to go. It’s a slow process but we are getting there. By (the IPM CRSP) using the farmers’ fields as the scientists’ laboratories in developing alternative pest management strategies, the adoption of technology is hastened and the process is shortened by 2 to 3 years. I hope that USAID will continue this project in the Philippines”* (Dulce Gozon, president of NOGROCOMA).

### Percent change



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