



Do vegetable growers really follow the scientific plant protection measures? An empirical study from eastern Uttar Pradesh and Bihar

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ABSTRACT

Insect pest and diseases are the major biotic constraints to vegetable production in India as they accounted about 10-30 per cent of crop losses in the country. To manage these biotic stresses, Indian farmers commonly rely up on spraying of synthetic/chemical pesticides. However, there are huge gaps between recommended scientific packages of practices and actual pesticide use pattern by the vegetable growers. This study was designed to identify those gaps in the districts of eastern Uttar Pradesh and Bihar, considered as a prominent vegetable growing belt of the country. Data were collected from 200 progressive vegetable growers with a structured questionnaire covering different aspects of plant protection measures. The results alarmingly depicted that 88.5% respondents applied overdoses of pesticides (with cumulative score 452) in vegetables and 87.2% did not even bother about any personal safety measures while spraying pesticides (cumulative score 441). The majority of the respondents (76.8%) used to spray pesticides during noon hours of the day, which enhances the chances of health hazards and not getting desired results from the spray. Farmers have very low level of knowledge about the toxicity colour code and container disposal techniques after use of pesticides. Other important plant protection issues have been ranked by the respondents as per their perceived priority like unawareness about the label claim (cumulative score 436), frequent application of pesticides without referring ETL (cumulative score 435). As the waiting period is not followed by the most of the farmers (cumulative score 427), the problem of pesticide residues is becoming severe. Non-availability of suitable bio-control agents in the market (cumulative score 433) and lack of knowledge about their usage further hinder their adoption. This paper envisages to flag the issues of grass root problems and will help to formulate future policies to control the faulty use of chemical pesticides and will act as a guiding principle for the safe and judicious use of pesticides.

Key words: Farmers' perception, Knowledge gap, Pest management, Vegetable growers

After green revolution, use of pesticides almost became inevitable for crop production in India. Introduction of high yielding varieties (HYV), applying inorganic fertilizers and use of chemical pesticides were considered as three pillars for enhanced production to feed the nation. But the indiscriminate and injudicious uses of pesticides have led to many problems like resistance to insecticides, resurgence of target insects and secondary pest outbreak, in addition to insecticide residues in food and beverages, contamination of groundwater, adverse effect on human health, and widespread killing of non-target organisms (Werf 1996, Berny, 2007, Halder *et al.* 2012, 2014). Apart from these, exposure to pesticides and its residue might cause a number of accidental poisonings, and even the routine use of pesticides may pose serious health hazards to farmers

both in the short and the long run. In many developing countries, farmers face great risks of exposure due to the use of toxic chemicals that are already banned or restricted in other countries accompanied with improper application techniques, poorly maintained or totally inappropriate spraying equipment, inadequate storage practices, and often reuse of old pesticide containers for food and water storage (Ecobichon 2001, Ibitayo, 2006, Asogwaand Dongo 2009). By their very nature most pesticides show a high degree of toxicity because they are designed to kill certain organisms and thus create some risk of harm. Even farmers who were well aware of the harmful effects of pesticides are sometimes unable to translate this awareness into their practices. Various inappropriate practices in the use of pesticides cause possible poisoning symptoms generally among farmers who do not wear protective clothing (Yassin *et al.* 2002, Salameh *et al.* 2004). On this backdrop, present study was designed to assess the pesticide use behavior/pattern of the vegetable growers, mainly from the eastern part of the country, so that, the actual gap between the scientific recommendations and farmers' perceptions, if any, can be worked out. This will also help to orient to formulate future policies to control

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