

GUIDELINE ON SAFE USE OF PESTICIDES & PESTICIDE PRESCRIPTION IN CROP PEST MANAGEMENT

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Background:

Chemical pesticides played a major role in minimizing the crop loss due to disease-pests, incidence, however, indiscriminate and non-judicious use of chemical pesticides in agriculture has resulted in several associated adverse effects such as destruction of bio-control agents, development of resistance in pests, pest resurgence, human and animal health hazards, pesticides residue in food, fruits and vegetables, fodder, soil and water, ecological imbalances and environmental pollution etc. Therefore, Government has adopted Integrated Pest Management (IPM) as cardinal principle and main plank of plant protection in the overall Crop Production Programme which is to be strictly followed. IPM is an eco-friendly approach which encompasses cultural, mechanical, biological and need based chemical control measures. The IPM approach is being implemented and disseminated through various ongoing schemes/ projects in the state.

Although pesticides play a vital role for management of pests they are to be used in a safe and judicious manner. Using pesticides incorrectly can put animals, plants and the environment at serious risk. Further it is to say that unnecessary use of pesticides has increase the cost benefit ratio of the crop creating economical loss to the farmers. Some-time unnecessary over or low dose of pesticides application create resistance or resurgence to the pests and imbalance the environment. For these reasons, before application of pesticides farmers should take care "which, how, when and where to use the pesticides".

The objective of the Guidance document is to reflect information on regulations and safe use of pesticides for disease pest management in the state. The guidance document also covers different precautionary methods used for reduction of exposure of pesticide residues in human being through food commodities.

Key Takeaways:

- To check excessive and unauthorized use of pesticides in crop and food grains.
- To grow safe foods grains and keep the farmers more aware about Safe Use of Pesticides.
- Strictly follow the major uses of pesticides approved/ certified by Central Insecticides Board, Govt of India.
- To implement the objectives of the Insecticides Act, 1968 with a view of regulating the import, manufacture, sale, transport, distribution and use of insecticides in order to prevent risk to human beings and animals.
- A panel of experts from concerned Department of OUAT also recommends the products on the basis of CIB recommendation (major uses of insecticides, fungicides, herbicides, bio-pesticides etc available in the GOI portal ppqs.gov.in website).
- A pesticide dealer can sell pesticides to farmers only as per the prescription issued by the Agriculture Officer or scientists from OUAT/ KVKs.
- Food grains samples to be sent to NRRI, Cuttack for testing the Pesticides at all stages including at house hold levels.
- General hygiene, personal protection, proper storage, proper disposal of pesticides needs to be taken by the pesticides dealers and the farmers.
- To take stringent action through rigorous Enforcement activities to check the spurious use of pesticides.



Problems to be addressed:

- Incorrect use of Pesticides leads to environmental risk.
- Inappropriate use of pesticides leads to resistance of pest.
- Lethal doses may lead to pest resurgence.
- Mishandling lead to health hazardous.
- Push sells by the pesticides dealer leading to phytotoxicity and health hazards.

Guidelines:

1. Pesticide Recommendation for Crop Pest Management

- Central Insecticides Board & Registration Committee (CIB & RC) under Ministry of Agriculture and Farmers Welfare, Govt. of India is statutory body for registration of the all pesticides and the Board approves the use of all pesticides crop and pest wise, the shelf life and waiting period for all types of registered pesticides and publish the list under the title, "major uses of Pesticides, bio-pesticides, herbicides etc" in the ppqs.govt.in website.
- The major approved uses of bio-pesticides, insecticides, fungicides, herbicides etc shall be used as the yard stick for recommendation by experts from OUAT / ICAR institutes and the extension functionaries.
- OUAT or KVK or ICAR scientists can only recommend the pesticides etc as per CIB recommendation. They can also recommend the product for additional pests or crop only after successful trials or research works made by them.
- Any Agriculture Officer or OUAT /KVK/ICAR Scientists can issue prescription to the farmer for pest or weed management either after pest surveillance or by direct contact using the CIB approved list.
- The pesticide dealer shall sell the pesticides only as per prescription issued by Agriculture Officer or OUAT /KVK/ICAR Scientists.

2. Pest Surveillance & Pest Management:

- The pest monitoring & surveillance will be regularly done as per the guideline communicated vide scheme Need Based Plant Protection under –State Plan.
- Survey and surveillance for pest and diseases with main emphasis to forewarn the farmers on the potential epidemics of crop pests.
- Farmers will be advised to adopt Integrated Pest Management practices throughout the cropping season instead of going directly for application of chemical pesticides.
- The farmers who have covered under pest surveillance and if having any pest incidence with moderate to high intensity are eligible to get 50% financial assistance as per scheme norm and online permit should be generated in his/her favor as per the recommendation of the Expert Committee / Central Insecticides Board.
- The Pest management advisory should be disseminated to the farmers in right time to minimize the crop losses caused by pests and diseases.
- Encourage farmers to use various ecologically sustainable pest management approaches rather than relying only on chemical pesticides.
- Promote use of bio-pesticides & bio-control agents in plant pest management.
- Conserve the diverse Agro- ecosystem for build-up of various natural enemies for plant pests.
- Create awareness amongst farmers on (i) Safe and judicious use of chemical pesticides (ii)

- To follow the label claims and instructions on dose and use as approved by CIB&RC.
- Popularizing IPM in farming community by imparting training to Agriculture / Horticulture Extension Functionaries and Farmers at Grass Root Level by organizing Farmers Field Schools.
- Rearing biological control agents for their field use and conservation of naturally occurring bio-agents.
- Promotion of bio-pesticides and neem based pesticides as alternative to chemical pesticides.
- To play a catalytic role in spread of innovative IPM skills to extension workers, land farmers equally to resource-poor and resource-rich states.
- In case of incidence of major pest like BPH, FAW etc joint field surveillance with KVK scientists should be made regularly followed by issuance of Advisory and daily reporting.

3. Safe Use of Pesticides

Proper training in the handling and application of pesticides is important, especially for professional applicators/ agricultural worker. For considering the proper training to the agricultural workers a massive awareness campaign cum training programme on safe use of pesticide will be carried out in the areas of more pesticide consumption like Bargarh, Cuttack, Sambalpur etc.

IEC Campaigns are to be organized for increasing farmers awareness with a focus on safe use of pesticides and to reduce the use of chemical pesticides in those areas with the following precautions while purchasing, during storage, while handling, while preparing spray solution.

a. While Purchasing

Rules to purchase pesticides:

- Purchase pesticides / bio-pesticides only from Registered pesticide dealers having valid License as per the prescription received from Agriculture Officer or KVK / OUAT scientists.
- Purchase only just required quantity of pesticides for single operation in a specified area.
- See approved labels on the containers/packets of pesticides.
- See Batch No. , Registration Number, Date of Manufacture/ Expiry on the labels.
- Purchase pesticides well packed in containers.
- Do not purchase pesticides without a prescription of Agriculture Officer or KVK scientist.
- Do not purchase pesticides from foot path dealers or from un-licensed person.
- Do not purchase pesticide in bulk for whole season.
- Do not purchase pesticides without approved label on the containers.
- Never purchase expired pesticide.
- Do not purchase pesticides whose containers are leaking/loose/ unsealed

Pesticide Prescription

- The easy access and availability of pesticides pose an alarming situation in the state. The small-scale farmers and those who cultivate vegetables for household purposes are purchasing the pesticides without any prescription from both local market and e-commerce

platforms.

- According to the government order, severe restrictions were imposed on the use of pesticides and guidelines are not displayed in depots/ outlets. The agriculture officers have been entrusted to examine the proper execution of it within a definite interval.
- The prescription given by Agriculture officers/ Horticulture officers is mandatory to buy pesticides with acute toxicity, which has placed under the red and yellow categories. However, consumers purchase these pesticides without any prescriptions from certain wholesale & retail pesticide outlets. So, that many problems arise due to the above reasons.
- The situation may not be brought under control even after inspecting outlets & vivid enforcement as these pesticides are easily available via online stores. It is observed that due to absence of facilities to keep a check on the number of pesticides supplied and also triggers issues for which the prescription is highly essential to avoid such accidental issues.

Execution

Registration through web portal

- The portal may be in the name of Dr's Plant Prescription/ Plant Dr's Prescription.
- There will be portal for registration of agriculture officer/ horticulture officer/ retired person/ KVK/ RRTTS/ OUAT scientist developed by NIC/OCAC.
- The portal will contain 3 components: 1). Mobile app 2). Web application 3). Integration of 'N' number of external software.

a. Mobile app specifications

- Mobile app to be used by farmer.
- It should be in local language.
- It should be text free (as far as possible).
- The app must be clean and specific.
- It must contain option to choose advisor.
- It must contain category search.
- There must be rating system of the advisor.
- There may be geo-location capture in co-ordination with land record of farmer(i.e. bhulekh).
- Image of diseased crop/ pest infested crop must be there.
- There may be provision only for online payment to the Non-Govt. registration holder.
- There should be generic and localized advice to the farmers.

b. Web application

- It must contain registration of the adviser.
- Rating of the adviser should be there.
- Payment to the adviser if only he/she belongs to Non-Govt. registration holder.
- Advice history must be available to check in details of the prescription.

C. Integration with 'N' number of external software

It may be linked with the following system:

- e-licensing system
- e-pest surveillance
- farmer registration(Farmer ID)
- Krushak Odisha ID
- Pest calendar

Format for registration

- There should be a format in the web portal for registration with the required information as follows:
- Basic information of the person who will be registered
- Qualification of the person i.e. B.Sc (Ag)/ B.Sc(Hort)/ M.Sc(Ag)/ B.Sc(Ag)/ PhD(Ag)/ PhD(Hort)
- Year of passing B.Sc/ M.Sc/ PhD
- Experience of the registered person i.e. Serving/ Retired/ Qualification.

Role of State Nodal Officer (SNO)

- JDA (PP) will be registering authority and also will act as State Nodal Officer
- He will monitor all the activities of the registration portal.
- He will supervise the enforcement activity headed by State Level Officer/ District Level Officer.

Prescription format

- The pesticides/ bio-pesticides should be brought only from registered pesticide dealers having valid license as per the prescription received from agriculture officer/ horticulture officer/ retired person/ KVK/ RRTTS/ OUAT scientist.
- There should be a prescription format which will be issued by the registering authority with the following data:
- Name of the farmer
- Farmer ID/ Aadhaar number of the farmer
- Active Mobile number or whatsapp number
- In diagnosis part: Name of the crop with the problems found (disease/pest).
- Name of the pesticide and its prescribed quantity.

Enforcement

Role of the recommending officers

- He must prescribe CIB registered product.
- The product should be available in Directorate of Plant Protection, Quarantine & Storage (DPPQS) portal.
- He will not promote any particular brand/ product of any company.
- DPPQS product should be available with CIB registration.
- Any mishap of crop due to the recommendation, the concerned registration should be cancelled by the State Level Committee/ SNO.
- Recommending officers should promote Need Based input/ Expert Committee recommendation.

Role of the dealers

- He must be a registered pesticide dealer having a valid license to sell the pesticides.
- The dealer should sell pesticides only as per the prescription and record the details of the purchase in their register.
- He must keep a Register with these 3 minimum information as follows:
 1. Name of the farmer with Farmer ID/ Aadhaar/ Mobile No.
 2. Name of the recommending officer/ Plant doctor with Register ID and mobile number
 3. Name of the product as prescribed
- Strict action would be taken against dealers/ retailers who violate the rule.
- Dealer will keep the prescription for time to time for verification.

Role of the pesticide inspector

- A pesticide inspector at Block level/ District level should investigate time to time to the dealer point/ depots and submit the report to the higher quarter for further needful action.
- The agriculture/ horticulture officers are entrusted with the charge of regular examination.
- They can access the registers in the retailers/ wholesalers/ depots.
- Report at the dealer point should have valid prescription by the advisor having registration certificate.

b. During Storage

- Store the pesticides away from house premises.
- Keep pesticides in original containers.
- Pesticides/weedicides must be stored separately.
- Where pesticides have been stored, area should be marked with warning signs.
- Pesticides be stored away from the reach of the children and live stocks.

- Storage place should be well protected from direct sunlight and rain.
- Never store pesticide in house premises.
- Never transfer pesticides from original to another containers
- Do not store insecticides with weedicides.
- Do not allow children to enter the storage place.
- Pesticides should not be exposed to sunlight or rain water.
- Carrot, okra, brinjal, cabbage and cauliflower can be washed with 1 percent tamarind solution.
- Vinegar Soak: Whip up a solution with 10 percent white vinegar and 90 percent water and soak fruits and vegetables in them. Stir them around and rinse thoroughly.
- Blanching: Blanching is a short treatment in hot water or steam applied to most of the vegetables. Certain pesticide residues can effectively be removed by blanching. But before blanching it is very important to thoroughly pre-wash the fruits like mango, citrus, apple, pear, peach, kiwi and vegetables like gourds reduces pesticide residues.
- Discard outer layer of leafy vegetables like cabbage, lettuce etc before washing as they grow close to the ground where soil could be tainted.
- Vegetables and some of the fruits which are consumed along with the peel, can be soaked in water for half-an-hour to one hour and rinsed a few times before use. Soaking fruits and vegetables five to ten minutes in a solution of diluted form of hydrochloric acid with four tablespoons of salt and juice of half a fresh lime and rinsing thoroughly with clean water helps in reducing residues. Use of dilute vinegar/ acetic acid followed by thorough rinsing is also recommended.

c. While Handling

- Keep pesticides separate during transportation
- Bulk pesticides should be carried tactfully to the site of application
- Never carry/ transport pesticides along with food / fodder/ other eatable articles
- Never carry bulk pesticides on head, shoulder or on the back

d. While Preparing spray solution

- Always use clean water
- Use protective clothing viz, hand gloves, face masks, cap, apron, full trouser etc to cover whole body
- Always protect your nose, eyes, ears, hands etc from spill of spray solution
- Read instruction on pesticides container label carefully before use
- Prepare the solution as per requirement
- Granular pesticides should be used as such
- Avoid spilling of pesticides solutions while filling the spray tank
- Always use recommended dosages of pesticides
- No activities should be carried out which may affect your health

- Don not use muddy or stagnant water
- Never prepare spray solution without wearing protective clothing
- Do not allow the pesticides solution to fall on any body parts
- Never avoid reading instruction on containers label for use
- Never use left out spray solution after 24 hours of its preparation
- Do not mix granules with water
- Do not smell the spray tank
- Do not use overdose which may affect plant health and environment
- Do not eat, drink, smoke or chew during whole preparation

4. Personal protection from pesticide residues through food chain

Under ideals conditions, the pesticides residues left in/on the food commodities are not supposed to pose any harm to the consumers. However, as a precautionary principle, following measures can be taken at the household level:

- Read pesticides labels properly for safety instructions(warnings) and directions of use
- Store pesticides at a place that can be locked and is not accessible to unauthorized people or children
- Left over insecticides suspension can be disposed off properly by pouring it in to a specially dug hole in the ground or a pit latrine. It should not be disposed of where it may enter water used for drinking or washing, fish ponds or rivers
- The reuse of pesticides containers is risky and not recommended Pesticides containers should be rinsed as soon as they are empty, completely filled with water, and allowed to stand for 24 hours. They should then be emptied, and the process repeated twice.
- Do not eat, drink or smoke while using insecticides. Take a shower or bath at the end of the day
- Gloves should be worn when handling the insecticides concentrate and preparing the insecticides mixture.

5. Safe Use Practices to reduce/ eliminate pesticide residues.

Pesticides are toxic to both pests and humans. However, they need not be hazardous to human and non target animals species if suitable precautions are taken. Most pesticides will cause adverse effects if intentionally or accidentally ingested or if they are in contact with the skin. Pesticides particles may be handled with the air while they are being sprayed. An additional risk is the contamination of drinking water, food or sol. Special precautions must be taken during transport, storage and handling.

Methods to reduce the Pesticide Residues from the Food Products

Following methods can be used for reducing the pesticide residues in most of the foods:-

- Scrub firm fruits and vegetables, like melons, root vegetables, like carrot and tubers like potatoes. Soft brush can be used to scrub the fruits and vegetables for five to ten seconds before rinsing with slightly warm water.
- Pesticides residues can be reduced from the food products by washing. Washing in clean

running, preferably drinking water reduces pesticide residues as it has abrasive effect. About 75-80% of pesticides residues on the surface of cereals, pulses, fruits and vegetables are removed by washing with water. Washing with 2% of salt water remove most of the contact pesticides residues that normally appears on the surface of the fruits and vegetables. The pesticides residues that are on the surface of grapes, apples, guava, plums, mangoes, peaches, pears etc, and Vegetables like tomatoes, brinjal, okra require 2-3 washings.

6. Quality Control and Enforcement

- The Quality Control Inspector in exercise of the power shall inspect the premises of the pesticide dealer not less than 3 times in a year and submit a report to licensing and appellate authority.
- The QC inspector to examine the pesticide dealer points in order to ascertain as per provision of Insecticides Act and Rule and to stop the distribution of the sale or use of the insecticides which has the reason to believe is distributed/ sold/ used in contravention to the Act and maintain all records of inspectors.
- The Quality Control Inspector should take stringent action as per the rules mentioned in the Insecticides Act & Rule and the Hand Book of QCI 'Legislations and Enforcement for Seeds, Fertilizer and Insecticides'.
- Random Pesticides samples to be sent by the Inspector to the laboratory for analysis covering all dealers and manufacturers in the locality.
- 100 number of pesticides samples to be collected from the urban areas for testing the pesticide residue of food grains.
- The State as well as district level flying squad should take stringent action against the spurious pesticides during inspection as per Insecticides Act and Rule.
- All the registered pesticide dealers to be made compulsory to stock bio-pesticides, pheromone traps & lures.
- No pesticide dealer/ manufacturer can stock or sell pesticides in the residential areas.

7. Awareness Campaigns on Pesticide management

- As per Operational guideline of need based plant protection 200 numbers of Pest Management Farmers Camps with Safe Use of Pesticides will be organized in the pest endemic pockets or during the occurrence of alarming pests like BPH, Fall Army Worm, Swarming Caterpillar, Tobacco Caterpillar etc.
- Five numbers of Mega IEC campaigns cum Mela for 500 farmers with door to door campaigns by volunteers and Mobile miking on 'Safe Use of Pesticide Management' will be organised in five districts having higher consumption of pesticides and higher number of pesticide dealer each year. Importance will be given for mobile awareness campaigns on safe use of pesticides and Grow safe Food to create awareness among the various stakeholders. The Action Plan under IEC scheme will be submitted for Govt approval by JDA Information in consultation with JDA Plant Protection.

The guideline for Safe use of pesticides for pest management should strictly be followed by the extension functionaries and the pesticide dealers/ manufacturers. Any deviation to the above guideline noticed/ reported at any level shall be treated as an offence.


Principal Secretary to Govt.
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