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Promotion of Integrated Disease Management through Community Outreach Programme

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Integrated Disease Management (IDM) is a sustainable crop-health approach that combines preventive, cultural, biological, mechanical and need-based chemical measures to reduce crop losses while limiting unnecessary pesticide use. Community outreach can improve the adoption of IDM by translating plant-health recommendations into practical, locally understandable actions. This paper presents a structured National Service Scheme (NSS)-based community outreach framework for promoting IDM among farming households in Rajnandgaon district, Chhattisgarh. The proposed field intervention uses baseline diagnosis, participatory problem identification, farmer meetings, demonstration plots, school and youth activities, disease scouting, sanitation campaigns, safe pesticide-use education and follow-up visits. The framework is designed around locally relevant horticultural and field crops and emphasizes early identification of disease symptoms, removal of infected plant material, balanced crop management, biological options and judicious fungicide use. The approach can strengthen farmer knowledge, improve timely disease-management decisions and build community-level capacity for safer and more sustainable crop protection. Quantitative impact indicators are proposed for subsequent field validation rather than presented as fabricated results.

Keywords: Integrated Disease Management, NSS, Farmer Awareness, Horticultural Crops, Sustainable Crop Protection.

Introduction

Plant diseases are a major constraint to productivity and profitability in agricultural and horticultural systems. Disease development is influenced by host susceptibility, pathogen presence and environmental conditions, while crop-management practices can strongly affect the severity and spread of infection. Farmers may therefore benefit from a coordinated approach that combines several compatible management measures instead of depending on a single control method. Integrated Disease Management refers to the planned integration of cultural, physical, biological, host-resistance and chemical measures according to the disease risk and crop situation. Important components include use of healthy planting material, field sanitation, crop rotation where suitable, proper spacing and irrigation, removal of diseased

plant parts, destruction or safe disposal of crop residues, monitoring and scouting, biological control and need-based application of registered plant protection products. Such an approach is particularly relevant where repeated and indiscriminate pesticide use may increase production costs and create risks to beneficial organisms, users and the environment. Community outreach is important because disease-management decisions are often made at field level and require repeated observation and timely action. NSS volunteers can support agricultural extension by organizing awareness meetings, helping communicate simple diagnostic messages, facilitating demonstrations and connecting farmers with subject-matter experts. The NSS motto '**NOT ME BUT YOU**' provide an appropriate framework for service-oriented agricultural and environmental education.

Study Area, Research Methodology and Intervention Strategy

Study Location Profile: The proposed community outreach work is situated in Rajnandgaon district, Chhattisgarh, with Kopedih, Barga and Torankatta as representative rural locations. Kopedih is described in the source field document as a village in Dongargaon Tehsil, Rajnandgaon district, located approximately 7 km from the College of Horticulture. The village has agricultural households engaged in vegetable, fruit, ornamental and field-crop production.

Research Design: A participatory action-research design is proposed. The study may use baseline and follow-up surveys, participatory rural appraisal, disease-problem mapping, farmer interviews, field scouting and observation of demonstration plots. Respondents can be selected from farming households in the participating villages. The baseline should document major disease problems, farmers' existing diagnostic practices, control measures, pesticide-use practices, sources of technical information and constraints to IDM adoption. The same indicators should be assessed during follow-up visits.

Table 1: Proposed Community Outreach and IDM Intervention Framework

Intervention	Major Activities	Target Group	Expected Extension Outcome
Baseline disease survey	Field scouting, symptom documentation, farmer interviews and problem mapping	Farmers and NSS volunteers	Local disease priorities identified
Awareness campaign	Door-to-door visits, posters, leaflets, meetings and Nukkad Natak	Rural households	Improved recognition of disease-risk factors
Demonstration plots	Show sanitation, spacing, irrigation management, biological options and need-based protection	Farmers and youth	Practical IDM skills strengthened
Disease scouting	Regular observation, symptom recording and referral to experts	Farmers/NSS volunteers	Earlier detection and timely decisions
Safe pesticide education	Label reading, PPE, dose discipline, waiting periods and safe disposal	Farmers and applicators	Safer and more judicious pesticide use
Follow-up evaluation	Post-intervention survey and field observations	Participating households	Adoption and constraints documented

Community Outreach Programme

The outreach programme should be implemented through sequential phases. First, NSS volunteers and technical personnel identify priority disease problems through field observation and participatory discussion. Second, simple educational materials are prepared using photographs, symptom illustrations and locally understandable language. Third, village-level demonstrations show how prevention and early management can be integrated. Fourth, volunteers conduct follow-up visits so that recommended practices are observed under actual farm conditions. The programme can include farmer meetings, school-based essay and drawing competitions, disease identification activities, cleanliness and sanitation drives around crop fields, and demonstrations of healthy planting material and field hygiene. Where disease diagnosis is uncertain, volunteers should refer the case to qualify agricultural or plant-health personnel rather than encouraging unsupervised chemical treatment.

Integrated Disease Management Components

1. **Preventive measures:** Healthy and disease-free planting material, resistant or tolerant varieties where available, crop rotation where appropriate, balanced nutrition, proper spacing and adequate drainage.
2. **Cultural practices:** Field sanitation, removal of infected plant debris, weed management, suitable irrigation practices and avoidance of conditions that favour prolonged leaf wetness.
3. **Physical and mechanical measures:** Removal and destruction or safe disposal of severely infected plant parts and maintenance of clean nursery and field areas.
4. **Biological management:** Promotion of suitable biological control agents and beneficial microorganisms where technically recommended and locally available.
5. **Monitoring and diagnosis:** Regular crop scouting, symptom recording, disease incidence/severity observations and timely consultation with plant-health experts.
6. **Chemical management:** Use only when justified by disease risk and according to the label, locally approved recommendations and safety requirements; avoid unnecessary or repeated applications.

Monitoring and Evaluation Indicators

To evaluate the programme scientifically, baseline and follow-up measurements should be collected using the same questionnaire and observation protocol. Suggested indicators include: percentage of farmers able to recognize major disease symptoms; percentage conducting regular crop scouting; adoption of sanitation practices; use of healthy planting material; adoption of biological or cultural measures; understanding of pesticide-label instructions; use of personal protective equipment; and number of farmers seeking expert diagnosis before treatment. Disease incidence and severity may also be recorded on demonstration plots using a standardized scoring method. Because the uploaded source document does not contain field measurements for an integrated disease management intervention, this paper deliberately does not present invented percentages or claims of statistically verified treatment effects. Actual baseline and follow-up observations can be inserted after field data collection.

Field Challenges and Community-Level Constraints

1. Limited ability to distinguish disease symptoms from insect injury, nutrient deficiency and abiotic stress.
2. Low availability of simple, locally understandable plant-disease diagnostic material.
3. Farmers' time constraints during peak agricultural operations.
4. Cost and availability constraints for some biological inputs, improved planting material and protective equipment.
5. Dependence on informal recommendations for plant-protection decisions.
6. Difficulty maintaining sanitation and follow-up practices after the initial awareness campaign.

Strategic Recommendations and Action Plan

- Establish regular collaboration among NSS units, university departments, Krishi Vigyan Kendras, extension personnel and Gram Panchayats for community plant-health education.
- Develop village-level disease calendars and simple symptom-identification sheets for locally important crops.
- Create small demonstration plots showing integrated disease-prevention practices rather than chemical control alone.
- Train NSS volunteers in basic disease observation and referral procedures so that they communicate verified recommendations.
- Promote safe pesticide handling, label compliance, personal protective equipment and responsible disposal through repeated outreach.

- Maintain follow-up registers documenting farmer participation, practices adopted and disease-management constraints.

Conclusion

Community outreach can provide an effective platform for translating integrated disease-management principles into practical farm-level action. An NSS-supported programme can combine awareness, participatory diagnosis, demonstrations, disease scouting and follow-up education while linking rural communities with agricultural experts. The proposed framework emphasizes prevention, early detection, cultural and biological measures and judicious chemical intervention. Its effectiveness should be established through properly collected baseline and post-intervention field data. Such evidence can help strengthen future community-based plant-health programmes in rural Chhattisgarh.

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