

Awareness Program Guide for Pesticide Safety in Nepali Vegetable Farming

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Abstract

This guide outlines strategies for implementing awareness programs to promote safe pesticide use among Nepali vegetable farmers. Despite high awareness (90%) of pesticide risks, improper handling, lack of personal protective equipment (PPE), and poor disposal practices persist, leading to health issues (e.g., 30.36% report acute symptoms) and environmental contamination. Drawing on recent studies, this guide proposes community-based training, digital tools, and policy reinforcement to enhance safety practices and reduce pesticide residues in vegetables.

1 Introduction

Vegetable farming in Nepal, accounting for 80% of pesticide use, faces challenges from misuse, with residues exceeding EU Maximum Residue Limits (MRLs) in 4% of samples [?]. Awareness programs are critical to address health risks (e.g., headaches, skin irritation) and environmental pollution [?]. This guide provides a framework for designing effective awareness campaigns, leveraging lessons from studies in Chitwan, Kaski, and Tokha [? ?].

2 Key Challenges

- **Low PPE Use:** Only 54% of farmers use masks and gloves; none use complete PPE sets [?].
- **Improper Disposal:** 66% discard containers in fields or water sources, contaminating soil [?].
- **Limited Training:** Only 17% of farmers receive Integrated Pest Management (IPM) training [?].
- **Residue Risks:** 4% of vegetables exceed EU MRLs, with organophosphates detected in 92.45% of yardlong beans [?].

3 Awareness Program Strategies

3.1 Community-Based Training

- **Workshops:** Conduct workshops in local languages (Nepali, Maithili) in districts like Chitwan and Kaski, focusing on pesticide toxicity, PPE use, and IPM. Train 100 farmers per session, as done in Kaski (2021) [?].
- **Farmer Field Schools:** Replicate USAID's KISAN project model, training 99,751 farmers on IPM since 2013 [?]. Use hands-on demos for biopesticides like neem-based solutions.
- **Womens Involvement:** Target female farmers, who face higher exposure risks (e.g., Kavre district) [?].

3.2 Digital Tools

- **Mobile Apps:** Expand apps like “Safe Food, Healthy Nepal” to include pesticide safety modules, allowing farmers to log usage and access multilingual guides. Incorporate AI-driven residue risk alerts.
- **SMS Campaigns:** Send weekly SMS tips on pre-harvest intervals (PHI) and safe disposal, reaching 86% of farmers who own mobile phones [?].

3.3 Visual and Media Outreach

- **Posters:** Distribute posters, as done by JICA's SAFE project (2025), in markets like Kalimati, illustrating PPE use and disposal methods [?].
- **Radio and TV:** Use local radio (e.g., Radio Nepal) for 15-minute weekly segments on pesticide safety, reaching rural areas with low literacy.

3.4 Policy Reinforcement

- **Enforce Bans:** Strengthen enforcement of 2019 Pesticide Management Act, banning HHPs like chlorpyrifos and paraquat (2024) [?].
- **RBPR Expansion:** Expand Rapid Bioassay of Pesticide Residue (RBPR) labs beyond Kalimati to rural markets, testing vegetables in 1520 minutes [?].

4 Implementation Plan

1. **Phase 1 (06 Months):** Pilot workshops in 10 wards of Chitwan and Kaski, targeting 1,000 farmers. Distribute 5,000 posters.
2. **Phase 2 (612 Months):** Launch SMS campaign and app updates, reaching 10,000 farmers. Train 50 agro-vet workers on safe pesticide sales.
3. **Phase 3 (1224 Months):** Scale to 20 districts, incorporating radio broadcasts and RBPR lab expansion. Evaluate via surveys (e.g., 90% awareness target).

5 Expected Outcomes

- Increase PPE use to 80% within 12 months.
- Reduce improper disposal by 50%, as seen in Kaski (2025) [?].
- Lower pesticide residues below EU MRLs in 90% of samples.

6 Conclusion

Effective awareness programs require community engagement, digital innovation, and policy support. By addressing knowledge gaps and promoting IPM, Nepal can enhance vegetable safety and farmer health, aligning with global standards.