

Reducing pesticide use in agricultural production in Yuanmou County: An ongoing EcoHealth journey

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Abstract

Key words: Agricultural intensification, pesticide using, agricultural workers, health, sustainable development.

1. Introduction

Agricultural intensification has been taking place in China since 1960s that largely improved food security, supply and nutrition. However, intensified agricultural production also poses critical problems for ecosystems and human health. Among others, excessive chemical pesticide using has increasingly become a concern of researchers and the general public. Yuanmou County, Yunnan Province, China is a winter-seasonal vegetable production base in China where large amount of chemical pesticides are used to promote vegetable plantation. Supported by IDRC and as part of the regional project “Field Building Leadership Initiative, Advancing EcoHealth in Asia”, we have been undertaking an EcoHealth project in Yuanmou aiming at reducing pesticide use and promoting local sustainable development.

2. Methodology

A site-based approach has been adopted in this project in which Yuanmou County was selected as a study site where the multidisciplinary research team has been working together with local partners and communities to undertake research and interventions that leads to long time engagement of different stakeholders. For the research component of the project, we used a mixture of quantitative and qualitative research methods that include questionnaire survey, interview, photo voice technique, observation and laboratory test.

3. Main research findings

The 5 year project will be finished at the end of this coming September and the research generated many findings. the major findings show that large scale vegetable and fruit plantations have rapidly increased in Yuanmou County in the last decade due to the increasing of urban financial capital investment in agriculture; local agricultural production highly relies on chemical pesticides that cause potential health and environmental costs; farmers know the harmful effectiveness of pesticides but farmers and agricultural workers wear little protection when using pesticides, however, they reduce the risk by consuming self-grown vegetables that do not use or use less pesticides; a new professional group: agricultural workers has emerged but little attention was paid to the occupational health protection of this group; local health workers have low awareness and capacity in dealing with pesticide-related health problems.

The excessive use of chemical pesticides in agricultural production in Yuanmou is caused by the complex

interaction of different actors with diverse interests and aims that are deeply embedded in the institutional arrangements and agriculture developmental policy that creates structural incentive. Agricultural development policy aiming agricultural modernization and intensification leads to high cost production module that cause heavy dependent on new variety of seeds, planting technique and high inputs of pesticides and fertilizers, therefore excessive pesticide using is just one section of the complex agricultural production system.

Conducting EcoHealth project or interdisciplinary research faces challenges at different levels, including individual, institutional and system levels and to address these challenges requires good leadership, intellectual thinking, strong commitment and passion as well as a supportive environment.

4. Conclusion

Simply forbidding the use of high toxic pesticides in vegetable production, as Yuanmou County government did, cannot effectively prevent the negative impact of pesticide using on human health and ecosystems. To effectively address the problems of excessive pesticide using need systems thinking and multi-stakeholder participation. In addition to farmers, pesticide producers and sellers, middleman of vegetable trade and consumers should be also involved in order to reduce the use of pesticides.



Table 1: the basic demographic data of farmers and agricultural workers in Yuanmou (n=712)

		Farmers		Agricultural workers	
		numbers	%	numbers	%
Schooling	Illiteracy	16	3.8	43	14.6
	Primary school	168	40.3	123	41.7
	Middle school	202	48.4	113	38.3
	High school	31	7.4	11	3.7
	College	0	0.0	5	1.7
Age	<20	0	0.0	9	3.1
	20-	155	37.1	104	35.3
	40-	247	59.1	175	59.3
	60+	16	3.8	7	2.4
Sex	Male	277	66.3	119	40.3
	Female	141	33.7	176	59.7

Table 2: sources of vegetables consumed by local farmers (n=417)

	Number	%
Private plots	319	77.00%
Farm field	2	0.48%
Brought from market	57	13.67%
Private plots+farm field	39	9.35%

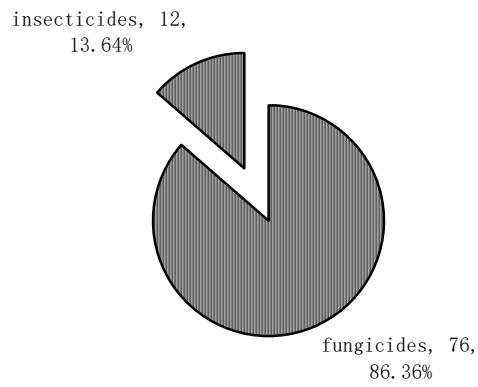


Figure 1: the numbers and types of pesticides used by 16 farmers in the plantation of tomato

Figure 2: Stakeholders in vegetable production

