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# On field clothes and their care adopted by pesticide applicators

## SUNITA KALE, SANGITA NAIK AND RASHMI GAIKWAD

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■ ABSTRACT : A survey was conducted among 105 pesticide applicators from five villages of Parbhani district to elicit information about their clothing attributes and dress pattern, washing practices, washing method, storage place and clothing replacement approach for clothes used by them while spraying pesticide in field with the help of survey schedule and also by conducting field visits. Cent per cent respondents applied pesticides during seed treatment and plant protection while 30 per cent respondents used pesticide/ herbicides during soil preparation also. Cent per cent respondents bought pesticides whenever required and applied them by spraying with the help of high volume power sprayers. Eighty five per cent and 68 per cent pesticide applicators reported to wear Banyan and Pant, respectively while spraying pesticide in field. Head was covered by the shoulder-scarf/ scarf and 60 per cent pesticide applicators used plastic shoes while spraying pesticide in field. Sixty to eighty percent pesticide applicators reported that the housewives washed the on field clothes with soap and water by beating, rinsing and drying on clothes line. Cent per cent pesticide applicators opined that clothes had off odour due to pesticide on clothes. Sixty per cent pesticide applicators stated that they put field clothes on clothes-line after pesticide application while 40 per cent stored them in pesticide storage area.

**KEY WORDS :** Pesticide applicators, On field clothes, Washing care

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he US Environmental Protection Agency defines a pesticide as 'Any substance or mixture of substances intended for preventing, destroying, repelling, or lessening the damage of any pest'. In developing country like India, farmers are using more and more pesticides to protect their crops. Clothing plays prime role in protecting the human body from exposure to any potential hazards. The amount and type of clothing worn depends on physical, social and geographic considerations. The clothes worn by the pesticide applicators are being exposed to various pesticides. The pesticide applicator should use clothes covering complete body causing minimum exposure to the pesticide. Cabrera and Leckie (2009) reported that twenty eight per cent of the pesticide applicators reported working in short sleeves or no shirt at all. All of the participants reported to wear their work clothes home from the field.

In order to minimize the ill effects of pesticides on health, it is necessary not only to wear proper clothes on

field but also to take proper care of clothes off field by the pesticide applicators. It is reported in FAO Report 22 September 2004, Geneva/Rome that because workers may not have easy access to washing facilities they often wear contaminated clothing throughout the day, eating and drinking with contaminated hands. Cabrera and Leckie (2009) reported that only 54 per cent pesticide applicators reported to change out of work clothing immediately upon arriving home, 32 per cent changed clothing several hours after returning home and 14 per cent waited until bedtime. Respondents wore work clothes an average of 1.4 times before washing and 22 per cent washed work clothes together with non-work clothes. 'A majority of launderers of pesticide soiled clothes are women and can be exposed to pesticide during laundry' (Rose Marie Tondl and Larry Schulze, 2000). The research was undertaken to study the type of clothes being worn by the pesticide applicators while spraying pesticide in the field and the care adopted by pesticide applicators to their field clothes.

## ■ RESEARCH METHODS

Survey was conducted among 105 pesticide applicators from five villages namely, Erandeshwar, Brahmongao, Shingnapoor, Nandkheda and Taroda of Parbhani district. Detailed information was collected on clothing attributes and on field dress pattern of the pesticide applicators with the help of survey schedule and also by conducting field visits. Information was also collected on washing practices, washing method, storage place and clothing replacement approach adopted by the pesticide applicators for the clothes used during pesticide application.

## ■ RESEARCH FINDINGS AND DISCUSSION

Cent per cent respondents applied pesticides during seed treatment and plant protection while 30 per cent respondents used pesticide/herbicides during soil preparation also. Cent per cent respondents bought pesticides whenever required and applied them by spraying with the help of high volume power sprayers.

Table 1 expresses clothing attributes of garments worn by the pesticide applicators in field. Cent per cent pesticide applicators used garments made out of polyester- cotton blend while 63.80 per cent used polyester and 10.47 per cent used cotton fabric along with it. Eighty four per cent reported to use medium fitting garments while 19 per cent used loose and 3.80 per cent used tight fitting garments. Sixty five per cent reported to have half coverage for body while 33.33 per cent had three fourth body covered and 6.66 per cent had fully covered body when working in field.

Table 1 : Clothing attributes of garments worn by the pesticide applicators in field (n=105)		
Clothing attributes	Per cent pesticide applicator	
Type of fabric used	Cotton	10.47
	Polyester	63.80
	Polyester- cotton	100.00
Type of fitting	Loose fitting	19.04
	Medium fitting	83.80
	Tight fitting	03.80
Coverage of the body	Half covered	64.76
	Three fourth covered	33.33
	Fully covered	06.66

Table 2 depicts dress pattern of the pesticide applicators on fields. Eighty five per cent pesticide applicators wore Banyan while spraying pesticide in field as upper body garment followed by half sleeve shirt and *Bandi* (30-32%), *Kurta* (20.95%), T-shirt-half sleeves (11.42%) and full sleeves shirt (3.80%). Pant was used by 67.61per cent respondents while little more than half of it (36.19%) used Pyjama while spraying pesticide in field. Commonly used head cover is scarf and shoulder scarf (45% - 50%). Plastic shoes were used by 60 per cent pesticide applicators while 39.04 per cent used Chappal and 17.14 per cent pesticide applicators used leather shoes while spraying pesticide in field.

Table 2 : Dress pattern of the pesticide applicators on fields		
		(n=105)
Dresses		Per cent pesticide applicator
Upper body garment	Shirt-full sleeves	03.80
	Shirt-half sleeves	32.38
	Kurta	20.95
	T-shirt-half sleeves	11.42
	Bandi	29.52
	Banyan	84.79
Lower body garment	Pant	67.61
	Pyjama	36.19
	Dhoti	06.66
	Lungi	01.90
Head covering	Cap	08.57
	Turban/ Saffa	01.90
	Scarf	45.71
	Shoulder-scarf	50.09
Footwear	Chappal	39.04
	Shoes -Canvas	03.80
	Shoes -Leather	17.14
	Shoes -Plastic	60.00

Table 3 focuses washing practices adopted by the pesticide applicators for the clothes used during spraying of pesticide. Seventy per cent housewives washed the clothes

Table 3 : Washing practices adopted by the pesticide applicators for on field clothes (n=105)		
Sr. No.	Details	Per cent pesticide applicator
Person washing clothes after pesticide application		
1.	Self	30.47
2.	House wife	69.53
Frequency of washing the clothes		
1.	Immediately	30.47
2.	Next day	48.57
3.	Weekly	26.66
Place of washing clothes		
1.	Farm	55.23
2.	Home	40.00
3.	Public tap	04.77

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of pesticide applicators while self washing of clothes after pesticide application was done by 30.47 per cent pesticide applicators. Forty nine per cent pesticide applicators reported that the clothes were washed on next day while 30.47 per cent expressed that clothes were washed immediately after application of pesticide and 26.66 per cent pesticide applicators stated that clothes were washed weekly once. Fifty five per cent pesticide applicators washed clothes in farm itself while 40 per cent washed on field clothes at home. A very meagre (4.77%) per cent of pesticide applicators washed clothes on public tap.

Table 4 shows method of washing clothes used while spraying of pesticide. Eighty per cent pesticide applicators washed clothes with soap and water while 62.85 per cent pesticide applicators washed clothes after pesticide application by beating, rinsing, drying and 32.38 per cent pesticide applicators by pre-soaking or rinsing before washing with detergent and kneading, squeezing and drying. Only 12.38 per cent pesticide applicators washed clothes in hot or warm water after pesticide application.

Table 4	4 : Method of washing clothes used duri pesticide	ing spraying of (n=105)
Sr. No.	Washing method	Percent pesticide applicator
1.	Just rinsing and drying	21.90
2.	Pre-soak or rinse before washing with	32.38
	detergent	
3.	Kneading, squeezing and drying	32.38
4.	Beating, rinsing and drying	62.85
5.	Washing with soap and water	79.04
6.	Wash in hot or warm water	12.38

Table 5 illustrates storage of clothes after pesticide application. Sixty per cent pesticide applicators stated that they put field clothes on clothes-line after pesticide application while 40 per cent stored them in pesticide storage area. Thirty seven per cent pesticide applicators stored in

Table 5 : Storage for clothes after pesticide application   (n=105)		
Sr. No.	Observation	Per cent pesticide applicator
1.	In pesticide storage area	40.00
2.	At home	20.95
3.	With other clothing items at work	06.67
4.	Not specified	32.38
5.	In plastic bags	37.14
6.	On clothes line	60.00
7.	In a locked cabinet	01.90
8.	In vehicle	07.61

plastic bags and 32.38 per cent pesticide applicators reported that storage place was not specified. Two to eight per cent pesticide applicators expressed that clothes were stored either in a locked cabinet or in vehicle or with other clothing items at work.

Table 6 shows clothing replacement approach of pesticide applicators for clothes used while spraying pesticide. Replacement of clothes was not done specifically by 59.05 per cent pesticide applicators while 24.76 per cent expressed that replacement was done when clothes wear out. A meagre per cent of pesticide applicators (3% -13%) had clothes replacement annually and seasonally.

Table 6 : Clothing replacement approach of pesticide applicator for clothes used during pesticide application (n=105)		
Sr. No.	Clothing replacement practices	Per cent pesticide applicator
1.	When it wears out	24.76
2.	Annually	13.33
3.	Seasonally	02.86
4.	Not specified	59.05

Table 7 demonstrates effect of pesticide on clothes as observed by the pesticide applicators. Cent per cent pesticide applicators opined that clothes had off odor followed by 91.42 per cent pesticide applicators expressed that due to pesticide durability of clothes get affected, while 61.90 per cent pesticide applicator had reported problem of colour loss of clothes and a very meagre per cent had stated the problem of tendering of clothes due to pesticides.

Table 7:	Effect of pesticides on cl applicators	fect of pesticides on clothes as observed by the pesticide oplicators (n=105)	
Sr. No.	Observation	Per cent pesticide applicator	
1.	Colour loss	61.90	
2.	Off odors	100.00	
3.	Durability	91.42	
4.	Tendering	02.85	

#### **Conclusion:**

Cent per cent respondents applied pesticides during seed treatment and plant protection while 30 per cent respondents used pesticide/ herbicides during soil preparation also. Cent per cent respondents bought pesticides whenever required and applied them by spraying with the help of high volume power sprayers. Eighty five per cent and 68 per cent pesticide applicators reported to wear Banyan and Pant, respectively while spraying pesticide in field. Head was covered by Shoulder-scarf/ Scarf and 60 per cent pesticide applicators used plastic shoes while spraying pesticide in field. Sixty to eighty per cent pesticide applicators reported that the housewives washed the on field clothes with soap and water by beating, rinsing and drying on clothes line. Cent percent pesticide applicators opined that clothes had off odour due to pesticide on clothes. Sixty per cent pesticide applicators stated that they put field clothes on clothes-line after pesticide application while 40 per cent stored them in pesticide storage area.

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## ■ REFERENCES

**Cabrera, N.L.and Leckie, J.O.** (2009). Pesticide risk communication, risk perception and self-protective behaviours among farm workers in California's Salinas Valley. *Hispanic J.Behavioral Sci.*,**31**(2):258-272.

FAO (2004). Report 22 September, 2004, GENEVA/ROME.

**Rose Meria Tondl and Larry Schulze** (2000). Use of personal protective equipment and laundry practices by Nebraska private applicators and launderers. *J. Pesticide Safety Edu.*, **2**:27-34.

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