
PROTECTIVE CLOTHING/EQUIPMENTS FOR FARM WORKERS

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ABSTRACT

Pesticides have undoubtedly served as a potent weapon to save agricultural crops from the pests. The encouraging results from pesticide usage resulted in exceptionally increasing use of pesticides by the farmers. However, pesticides have been reported to pose severe health hazards to the health of applicators. The chemicals present in Pesticide preparations have a tendency to get absorbed by skin and enter into respiratory track to cause health issues like, skin irritation, respiratory illness, etc. The Protective clothing serves as a potent means to minimise the exposure to pesticides, thereby, ensuring to curtail the pesticide mediated health hazards to a significant extent. The different types of protective clothing, for instance, coveralls, boots, gloves, goggles, helmets, etc., functions to protect different body parts to a variable degree. However, the extra cost associated with these protective clothing has led to a noticeably underappreciated usage of protective clothing by farmers. This entails the spreading of awareness about the benefits of application of protective clothing and making them available to farmers at an economical/affordable price for popularising their use among farm workers. This would serve as an appreciable move towards the better health of our farmers, which indeed will strengthen the very backbone of the country.

Keywords: Protective Clothing, Pesticides, Health Hazards.

I. INTRODUCTION

Agriculture forms the backbone of Indian economy. India has been primarily renowned as an agricultural country. Our farmers have been facing diverse challenges like struggling with various environmental assaults like sun strokes, cold shocks, rain associated diseases, etc. To add to this adversity, the farm labour employees often faces harsh treatments from the farm owners to earn their meagre income. Our farmers are going through all these unfavourable circumstances just to meet the food requirement of our country. But, even after striving for the feat to grow food for everyone, they sometimes find themselves incapable to quench the hunger of their own family members(1,2).

The hard earned agricultural crops, grown through exhaustive physical sufferings often gets aggravated by the risk of crop damage by pests, weeds and diseases. Amongst them, pest damage has severely impacted all the crops including the food grain crops like rice, sorghum, maize, millet as well as crops of industrial value like cotton and stood out as a leading foe of crop(3,4).

Pesticides associated health hazards:

The pesticide industry have long been striving really hard to facilitate farmers in their everlasting war with pests. The usage of pesticides is extensively expanding agricultural practices throughout the country since last many decades. The pesticides have undoubtedly proved valuable in significantly curtailing the pest mediated crop damage. However, the popularisation of chemical pesticides have also led to emergence of various health hazard in the farm workers(5).

Pesticides are highly liable to get absorbed by skin, seeped into respiratory system (through mouth and nose) or entered into eyes. The absorption of pesticides through skin is the most putative way of getting afflicted with health issues by pesticide applicators, which often ends up in corrosive or irritative manifestations(6,7).

Nonetheless, the absorption of pesticides by body can be restrained to a remarkable degree by usage of specially designed clothing tailored for conferring protection against pesticides. The employment of the protective clothing helps remarkably in alleviating the pesticide mediated health issues by dampening the direct contact with pesticides(8).

The protective clothing not only serves the purpose of protection against pesticides but also proves to be of great help in comforting farmers in working under adverse weather conditions, like assaulting heat, fierce cold, immoderate humidity, dusty winds, rains and hailstorms. For instance, a hooded apron or hats can save from sun stroke, face mask or glasses can prevent dirt or dust particles from entering their nose, mouth and eyes, usage of flood boots can be helpful in working through rainy season, etc. However, the additional costs of these protective clothing might not be affordable to farm workers from their scanty wages(9,10).




Protective clothing:






The routine work cloths confers a protection against pesticide exposure to some extent. The protective clothing are especially designed liquid proof, chemical resistant clothing that furnishes way better protection than these regular clothing but at the same time they may not be that convenient to wear. Pest attacks are majorly encountered in hot, humid seasons and so, the pesticides are primarily employed during this season. Wearing protective garments serves the primary purpose of not only curtailing direct exposure to pesticides but also helps to save from the harmful effects of solar UV radiations(11,12).

The protective clothing includes various meticulously designed specialised clothing and equipments, namely:

1. Coveralls
2. Aprons
3. Gloves
4. Helmets
5. Boots
6. Goggles
7. Face shields
8. Respirators

The usage of these protective garments while handling pesticides makes our body safe against different health problems arising out of Pesticide exposure. Below is the presentation of a brief outline of each of the listed protective clothing(13,14)

S.NO	Name	Images	Description
1	Coveralls		Coveralls are protective clothing that covers your body from wrist to ankles. Wearing coveralls over routine clothing helps remarkably to cut down the exposure of skin to pesticides. Thus, it acts as an effective additional layer of protection to pesticide exposure for your skin.
2	Aprons		In general, aprons serve to protect your front side of body against dirt or chemical spray. However, the aprons designed specifically for pesticide protection are made chemical-resistant and thereby, serves very potent protection against pesticides
3	Gloves		The Gloves protect our hands from coming in direct contact with pesticides. Gloves with textile material or leather, however, should be avoided while working with pesticides as they absorbs chemicals. A through rinsing of non-disposable gloves with clean water is highly recommended before discarding them.

4	Helmets		<p>Helmets are meant to cover your head against the contact of pesticides. The pesticides particulates can get easily trapped in hairs and may impact hair and skin health adversely and so, wearing a helmet safeguards the head region from getting pesticide exposure. Helmets with attached face shield would often serves an additional protection layer to face.</p>
5	Boots		<p>Wearing Boots while handling pesticides protects your feet from pesticides splashes or spills. The boots should be properly washed after pesticide spray.</p>
6	Goggles		<p>Pesticides can pose corrosive or irritative manifestations to eyes. Thus, wearing goggles can prevent our eyes against the hazardous impact of pesticides</p>
7	Face shields		<p>Face shields helps to avoid a direct contact of pesticide particulates to the sensitive parts of your face like nose, mouth and eyes. Hence, it is advisable to wear face shield while working with pesticides as a part of good agricultural practice.</p>
8	Respirators		<p>Respirators is a crucial equipment for preventing entry of pesticide particles to respiratory system through inhaled air. The respirators are usually provided with one way valve or filters to filter out pesticide particles or fumes from the inhaled air. The filter of respirators should be cleaned or replaced on daily basis.</p>

Standard Attributes of typical protective clothing/equipments

The above described protective clothing and equipments furnishes strong and effective protection against pesticide. Nonetheless, the possession of discussed features could really add a great value to protective clothing/equipment in execution of their purpose.

1. Affordability:

The protective clothing should be made available to the farm workers by government at a economical price to enable them with the purchase of the same within their meagre income.

2. Sustainability:

The manufacturing of protective clothing should be done with the materials that can furnish them with the sustained long lasting use.

3. Washability:

As the protective clothing comes in direct contact with chemical pesticides, it needs recurrent washing to remove off the chemicals from them. This makes washability an essential and value adding attribute to protective clothing.

4. Appropriately tailoring to specific purpose:

The designing of protective clothing should take into consideration of equipping them with all prerequisite features that tailors them to serve their underlying purpose in its best way.

5. Anthropometric measures:

The protective clothing should be designed in such a way that it can be worn easily by farm workers of varied sizes and body proportions to avoid the need of alteration in them as per the applicators anthropometric measures.

II. CONCLUSION

The usage of pesticide has become inevitable and effective weapon to fight against pests by farm workers. However, the increasing employment of pesticides in farms has put the health of applicators at stake. The pesticides get absorbed by various parts of body and causes ensuing hazardous effect to health like irritation, corrosive reactions, etc. The Protective clothing/equipments serves as a potent means to protect the applicators against the pesticide mediated health issues. Nonetheless, with the limited income of farm workers they are very less likely to afford the protective clothing. Thus, to encourage the usage of protective clothing among farmers, government should step forward to provide financial assistance to avail such specialized clothing to our farm workers that are engaged themselves with the application of pesticides. The awareness about protective clothing and popularisation of their usage would be a great favour to return to farmers as an appreciation to the hardship they go through in growing food for our country. Remember, farmers are backbone of our country and a healthy backbone would only be able to sustain the food supply burden of the country.

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