SAFER PESTICIDE APPLICATION IN AFRICA

Graham Matthews of the International Pesticide Application Research Centre (IPARC) (http://www.bio.ic.ac.uk/iparc/) describes a start being made to improve application technology in Africa

In the major markets of Western Europe and North America, where registration of pesticides is closely controlled, significant developments in packaging and sprayer design, including closed transfer systems and use of low level induction hoppers have reduced exposure of operators to the toxic chemicals. The reduced exposure to the concentrated formulation has been coupled with use of air-conditioned tractor cabs and use of appropriate protective clothing (PPE). Certification of operators and official equipment inspection in many countries also ensure that pesticides are applied with due regard to safety of the user and the environment.

This contrasts with the situation in many developing countries, where highly toxic pesticides are applied using manually operated sprayers, without PPE. While there have been training programmes to promote safe use, little attention has been given to the design of equipment to minimise operator exposure. In the UK, the Health and Safety Executive initiated work on a British Standard for lever-operated knapsack sprayers (BS7411), and this has been followed by development of an International standard ISO/CD 19932.

In the meantime, FAO concerned about the poor quality of manually carried sprayers has published guidelines on minimum requirements in an effort to make purchasing agencies aware of the need for better quality spraying equipment, which is safe to users and to the environment as well as being efficient and durable in operation. Part One of the Guideline (http://www.fao.org/ag/AGS/Agse/guide_en/evol1.htm) covers the principal types of portable (operator-carried) sprayers, including sprayers with rotary atomizers and a second part (http://www.fao.org/ag/AGS/Agse/guide_en/evol2.htm) deals with vehicle-mounted and trailed (tractor) sprayers. The prime objective therefore is that member countries should adopt these minimum requirements immediately, to begin to eliminate substandard and unsafe sprayers from national markets and ultimately from the international scene.

The minimum requirements are especially aimed at reducing the leakage or spillage of spray liquid on the operator and reducing exposure during spraying as much as possible.

Key features of the lever-operated knapsack sprayer should include:

- A large tank opening and a deep set filter with marker to allow easy filling from a bucket to the maximum level without splashing or overfilling the tank.
- A valve to stop liquid leaking through the air vent.
- A smooth surface and a sprayer design that avoids retaining and entrapping spray liquid.
- A lance of at least 500mm in length, provided with a parking position to avoid damage to the lance or nozzle when being transported or stored.

Examining sprayers to meet FAO minimum requirements in practical classes at Yaoundé, Cameroun

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Examining engine speed of a motorised Solo mistblower using a "Vibratole" tachometer.

Measuring the leakage from a sprayer lid when the sprayer is "knocked over" onto the horizontal position (about 38 ml in 5 minutes).

- A trigger valve fitted with a filter and locking device to avoid spray being turned on accidentally.
- Straps at least 500mm at the shoulder, and a waist strap, so that the effort of pumping is transferred more effectively to the pump.

Already major manufacturers are changing their equipment to meet these requirements, but for the small-scale farmer, the usual criterion for selection a sprayer is its cost in the local market. Efforts are therefore needed to spread the message to a wider audience that investment in slightly more expensive but well designed equipment will be beneficial in terms of reducing risk of ill health and greater durability of the machine.

The Inter African Phyto-Sanitary Council (IAPSC) of the African Union (AU) (http://www.eppo.org/WORLDWIDE/RPPOs/iapsc.html) has requested assistance from FAO to implement the minimum requirements throughout Africa. FAO has therefore initiated a pilot project in Cameroon, a country with agro-ecological zones representing the whole of Africa.

A baseline survey in Cameroon has confirmed the preponderance of lever-operated knapsack sprayers throughout the country and on many crops, and the widescale use of rotary atomisers on cotton in the semi-arid zone for herbicides as well as insecticides. Thermal foggers were also reported being used by groups of small farmers on cocoa and with little PPE! The survey also revealed a pressing need to provide specific guidance and recommendations on washing sprayers to avoid contamination of streams and other water sources.

A major objective of the pilot project is to develop training courses and a training manual for Africa, which emphasise the design of sprayers and the contribution good equipment can make to safety to the operator and the environment. An initial training course will be held for trainers in the Cameroon and will be followed by a course which will be for representatives from other African countries.

The pilot project the aims to provide the framework for transferring the message on sprayers into other African countries and will include equipment and operator certification schemes to promote the safe and efficient use of pesticides when needed as part of IPM programmes. Clearly with the increasing human population and the difficulties created by food shortages due to major drought, cost–effective and safe crop protection becomes increasingly important in smallholder agriculture throughout Africa.

IAPSC

The inter-African Phytosanitary (IAPSC) with its Headquarters in Yaounde, Cameroun, is an inter-governmental organisation responsible for international cooperation in plant protection throughout Africa. Founded in 1956, IAPSC has 53 member governments. Its main aim is to prevent the introduction and spread of crop and forest pests in Africa. Harmonisation of phytosanitary legislation is combined with cooperation in areas of plant protection involving pesticide registration and certification of plant materials. The council also provides a documentation service for provision and exchange of information related to its activities.

BOOKS BY GRAHAM MATTHEWS

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