

Health and Safety Executive		Sector Information Minute	
Agriculture and Food Sector		SIM 01/2001/05	
Cancellation Date	31/05/2004	Open Government Status	Fully Open
Version No & Date	1: 31/05/2002	Author Unit/Section	Agriculture & Wood Sector

Target Audience

All FOD Inspectors inspecting agriculture
Specialist Group Inspectors (Mech Eng)

BS EN 907, AGRICULTURAL AND FORESTRY MACHINERY SPRAYERS AND LIQUID FERTILISER DISTRIBUTORS - SAFETY: APPLICATION TO FIELD CROP SPRAYERS, PARTICULARLY IN REGARD TO BOOM FOLDING

THIS SIM ALERTS INSPECTORS TO THE CURRENT HSE POSITION IN RELATION TO THE APPLICATION OF THE ABOVE 'C' STANDARD FOR AGRICULTURAL CROP SPRAYERS.

BACKGROUND

1 HSE enforcement action in recent months has exposed a lack of clarity in the above standard. HSE's interpretation, supported by the CEN consultant, has been shown to be different to that of manufacturers and importers in relation to hazards caused from contact with overhead power lines (OHPLs). This has left both suppliers and users seeking advice for both new and second-hand machines which they are currently selling/using. Other parts of the standard are also subject to a variety of interpretations.

2 On a new sprayer the main safety features required by the standard are:

- a low level pesticide induction system;
- storage for clean emergency washing water;
- the spray booms should not exceed 4 m from the ground while they are being folded or unfolded; and
- under HSW Act s.6, HSE is asking for a protective clothing container on the sprayer.

3 The maximum height requirement for boom folding and unfolding was agreed so as to produce a margin of safety between the booms and OHPLs, particularly to allow for arcing and for upward movement of boom tips due to uneven ground etc. Folding/unfolding at 4m leaves a margin of 1.2 m (the statutory minimum height for 33 kV and 11 kV lines over farm land is 5.2 m and over roads accessible to vehicular traffic is 5.8 m).

4 Electrical contact with power lines by sprayers has caused 4 fatalities, several major injuries and numerous near miss incidents in the last 15 years.

5 HSE has taken enforcement action against two manufacturers and one farmer during

1999/2000. One of the manufacturers was successfully prosecuted following a power line contact. The other manufacturer was subject to 2 prohibition notices on the sale of new and second-hand machines with booms that exceeded 4m during folding. Both of these manufacturers had booms that folded vertically as opposed to the horizontal 'gull wing' folding system and both could fold well in excess of 5.2 m. The farmer was prosecuted following a contact with OHPLs resulting in a fatality.

INFORMATION

New sprayers

6 All new sprayers being sold in the UK should have boom folding systems which do not allow the booms to reach more than 4 m from the ground when being folded/unfolded. This measurement should be taken on level ground.

7 Some sprayers have boom-levelling mechanisms which allow a part of the boom to follow sloping ground. This is different to the folding/unfolding requirement and is not covered by the standard. The Sector consider that being able to raise booms above 4 m in this way when on level ground is a matter to be taken up with the operator and not the manufacturer. When in use for their intended purpose on sloping ground the OHPLs will be at a correspondingly greater height in relation to the sprayer boom so no greater risk is created. The tilt mechanism is not intended to be raised on level ground and there is no accident history.


Second-hand sprayers being offered for sale

8 On second-hand machines being sold for use at work in the UK, HSW Act s.6 applies and the vendor's responsibilities are qualified by 'so far as is reasonable practicable'. These duties only apply to sale for use at work so s.6 is not applicable when trading a machine back to a dealer.

9 For second-hand machines with booms which exceed 4 m when folding/ unfolding, the vendor should assess the likely risks posed against the effort and cost needed to achieve a safe clearance distance.

10 If a risk of power line contact exists then the vendor must consider replacing the entire boom system or, if this is not reasonably practicable, interlocking the boom to its lowest possible folding height to give an adequate safety clearance. The interlock system should not be easily overridden. If neither of these options are reasonable or practicable, then they should remove the sprayer from the supply chain by scrapping, exporting, stripping for spares, etc.

Existing machines in use

11 For machines currently in use on a premises there is no automatic prohibition on use. The requirements of the Provision and Use of Work Equipment Regulations 1998 (PUWER) apply and require risk assessment and risk control. Any farmer with a sprayer with booms which exceed 4 m will need to take account of any overhead power lines they have crossing their fields and take action as outlined in AIS 8 [Working Safely Near Overhead Power Lines](#) .

12 Farmers planning to change a sprayer should be advised to think carefully about the equipment they buy to replace their existing machine and comply with PUWER reg.4. If

they are selling their current machine they should consider the HSW Act s.6 implications.

ACTION BY INSPECTORS

13 Where a supplier is selling new sprayers which have booms which can be folded/unfolded at over 4 m from the ground, inspectors are asked to consult with the Sector on the action to take. A prohibition notice (PN) option, dependent on the margin by which 4 m is exceeded and the position in relation to the centre line of the sprayer at which it is exceeded. The difference in risk between a sprayer which can make direct contact with OHPLs and one which can only do so with a long flash over distance needs to be considered carefully. (Where a PN on supply of new sprayers is considered the Supply of Machinery (Safety) Regulations apply and inspectors should check the [HSE Guide to the Inspection of Manufacturers and Suppliers Chapter 4.3](#) re notification of the EC through FOD Safety Unit).

14 Where sprayers are large enough for the risk of contact with OHPLs to exist, inspectors should ensure that operator handbooks for new sprayers provide a clear warning on the risks from OHPLs. Where suppliers provide operator training to new customers the dangers of OHPL contacts should be included as part of that training. Warning labels should be fixed where appropriate, see EN 907.

15 Where a second-hand sprayer is being sold which has booms which can exceed a height of 4 m when folding/unfolding inspectors should advise the vendor to take action in accordance with [para 10](#) above. Where, during folding/unfolding, a height of 4 m or less cannot be achieved then, using HSW Act s.6 (ie considering a balance of risk against cost in relation to the overall value of the sprayer) inspectors may have to accept a higher boom folding/unfolding height up to a maximum of 4.5 m. No height above 4.5 m is acceptable.

16 Chemical induction hoppers (where designated as a requirement in the standard) and washing water containers (all sprayers) must be provided on new sprayers as part of the standard specification. The Sector has received complaints from some suppliers that other suppliers are selling these as optional extras and thus reducing initial costs to gain a sales advantage. Inspectors are asked to check price lists and take appropriate action with the supplier if it is found that these items are being offered as optional extras when they are a requirement of the standard.

17 On sprayers fitted with enclosed booms designed to reduce spray drift (usually an optional extra) inspectors should check if the manufacturer has considered safe access to the nozzles. The manufacturers should have designed in, or covered in their operators manual, a safe method to access the nozzles without becoming contaminated with spray residue or drips. Access to nozzles is necessary for checks on volume/application rate etc.

Sector contact

18 Sector contact on sprayer issues is David Gould, Nottingham Office. VPN 513 2834.

Date first issued: 31 May 2001

