

National Vegetable Industry Centre Newsletter

Identifying and Controlling Impact Damage On Onions

Jenny Ekman and Mark Hickey

It is estimated that 5 to 10% of onion crops are discarded because of injuries caused by harvesting and grading. Even where impact damage doesn't cause an obvious bruise or break the skin, it can increase water loss and reduce storage life. Tolerances to impact damage will vary according to variety, irrigation practices and seasonal factors. As you might expect, early season mild onions are more easily damaged than long keeping varieties. Also, onions are firmer once they have been cured, so they may be less susceptible to damage during packing than they are during harvest.

In a recently completed project to pinpoint exactly where the damage was occurring an impact recording device (IRD) was used. The IRD is a cricket ball sized sphere and was allowed to run through a harvester and grader just as an onion would, eventually tumbling into the bag (The red sphere can be seen as it passes along the grading belt). Sensors inside the sphere record the major impacts along the way, revealing where the damaging impacts occurred.

The IRD device was used to test a number of Riverina harvesters and graders during the last 2 seasons. The largest impacts during harvesting generally occurred when the onions fell into an empty bin and the largest impacts from the packing line generally occurred during bagging. Knowing where impacts occur and understanding whether they are likely to cause damage means that problem areas can be rectified. In many cases impacts can be reduced relatively easily and without huge expense.



A full report will be published in the next issue of the Onions Australia magazine or for more information contact Jenny Ekman, Research Horticulturist at Gosford on 02 4348 1967 or Mark Hickey, District Horticulturist at Yanco on 02 9651 2523

Plague Locust Situation In NSW

The outbreak of Australian Plague Locust (*Chortoicetes terminifera*) this spring has the potential to be the largest in NSW since 1979/80. Hatchings and band formation are heaviest in the Northwest Slopes & Plains, Central West Slopes & Plains and Central Tablelands. Less intense hatchings and band formation are expected in the Riverina, Southwest Slopes & Plains, Northern Tablelands and Upper Western. Egg laying may have gone unnoticed in many areas and all landholders should be on the lookout for hatchings. Landholder control of bands is essential to limit the development of swarms and prevent damage to crops and pastures and migration into other districts.

Plague locusts have an amazing ability to reproduce rapidly, migrate hundreds of kilometres overnight and destroy large areas of crops and pastures in their quest to lay down fat in order to complete their breeding cycle. Landholder control of locust nymph bands will be essential to limit the development of swarms and break the breeding cycle. The aim of the current control campaign is to contain the outbreak at the nymphal stage, preventing the locusts from migrating and breeding.



Ground control by landholders when they are in the nymph form provides the most effective opportunity to control locusts. Aerial control of bands and swarms occurs if deemed necessary and environmentally acceptable. Aerial control is only undertaken against substantial targets. There are three types of insecticides currently available for use by landholders for ground control during the plague locust outbreak and are generally available free of charge through Rural Lands Protection Boards (RLPBs) in affected areas.

NSW Department of Primary Industries (NSW DPI), the RLPBs and the Australian Plague Locust Commission are treating the plague locust threat as a priority. For contact details or up to date information and the current situation on the plague locust outbreak go to the NSW DPI website at www.agric.nsw.gov.au/reader/pe-locust.



Fusarium Cob Rot On Sweet Corn

Andrew Watson

As a result of a serious cob rot outbreak in sweet corn during 2002, a project was undertaken to find the common endemic and endophytic *Fusarium* species associated with this crop (An endophyte is an organism that is situated with the plant without causing symptoms). An initial survey was conducted in 2003 and included collecting plant samples from all the main growing areas in NSW. Stem and peduncle (shank) pieces were collected and checked for *Fusarium*. Variety trials were also undertaken using the same seed that was sown when the cob rot outbreak occurred.

Although various *Fusarium* species were isolated from the stems and shank pieces, no serious outbreak of cob rot of sweet corn was found in 2003 in either the variety trials or any NSW commercial crop. However, a serious problem occurred with cob rot in maize in the Riverina. Some aspects of the outbreaks had similarities. Weather conditions at both sites in both years received rainfall events just prior to harvest times. In February 2004, some sweet corn crops in the Murrumbidgee Irrigation Area were rejected because of brown staining of kernels and subsequent infection by *Fusarium*. The brown stained kernels turn black when processed. Extreme heat before harvest could have contributed to this outbreak. Thrips and a fungus called *Tilletiopsis* was also found on many cobs on the surface of the kernels.



Brown markings on kernels

A field trial was undertaken in 2004 to evaluate water stress on the expression of *Fusarium* on sweet corn. Different irrigation treatments were applied to a number of small plots sown with Golden Millennium and Jubilee. Results showed that Golden Millennium had significantly more cobs with brown stained kernels than Jubilee. No relationship between *Fusarium* and water stress was found. The project concluded in June 2004 and was funded by Horticulture Australia. For more information on this project contact Andrew Watson, Research Pathologist at Yanco on (02) 6951 2647.

Meeting Melon Growers Across Australia

Joanna Embry, Emily Martin and Judy Greensell from the Australian Melon Growers association have been visiting growers around Australia. During the end of September Joanne and Judy visited growers across Northern Victoria and NSW including Mildura, Hay, Griffith and Canowindra. These meetings provided an opportunity to update growers in these areas about the outcomes of the Strategic Plan Review, discuss issues relevant to the coming spring/summer season, talk about issues concerning the industry including packaging and the phase out of methyl bromide as well as discuss the soon to be released melon industry levy proposal. The levy proposal will be mailed to all melon growers across Australia, but if you want more information, contact Joanna Embry, Melon Industry Development Officer at Growcom on 07 4153 2555 (BH), 0438 802 393 (mobile) or jembry@growcom.com.au



Managing Bean Diseases

Andrew Watson



A new research project looking at managing bean root and stem diseases has recently commenced at Yanco Agricultural Institute. The bean diseases include root rots, rust, sclerotinia rot, cottony leak, angular leaf spot, halo blight and common blight. This project will investigate the current status of these diseases and the management options available.

The main research part of this project will be to address the issue of root and stem diseases by initially assisting growers with diagnosis of these diseases and to investigate control methods. This project aims to integrate past information on root/stem diseases of beans and to trial new methods of controlling these diseases.

This is a national project funded by Horticulture Australia and will provide the industry with the current status of bean diseases and their impacts on production. It will provide an updated status of disease management options for bean diseases and more specifically an improved method for management of stem and root diseases. For more information on this project contact Andrew Watson, Research Pathologist at Yanco on (02) 6951 2647.