RAIN N GRAIN & STUBBLE MOUSE SAMPLING OBSERVATIONS.

John Small & Nick Hill - Central West Farming Systems

GRDC project CWF00018 – Maintaining profitable farming systems with retained stubble in Central West NSW.

A major component of the Rain n Grain and Stubble project is: "a proactive approach to pests within a Stubble retained system". Due to the impacts of the recent (2011) mouse plague, the consideration that every region is, on average, subjected to a mouse plague every 7 years (Singleton et al, 2005 cited in; Brown, 2007), and the knowledge that stubble retained systems favour mouse populations (Caughley, 2001 cited in Pople et al, 2013), CWFS is pro-actively monitoring mouse activity around the Central West region to identify what is happening as well as to provide this information to: CSIRO/the CRC for Invasive animals/ NZ Landcare Research, for inclusion in the GRDC funded project: Monitoring Mice in Aus-tralia. The data from which will be used to create a predictive model that will assist to identify when a particular grain growing region is likely to be subjected to a mouse plague. This information will be used to inform local producers of the impending plague so as proactive measures can be applied. At each site mouse numbers are monitored at 2 separate locations / vegetation types. Each location has 1 transect of 10 chew cards, soaked in a canola and Linseed oil mix, placed every 10mtrs. The cards are left out over-night and collected the following day with the percentage of card chewed recorded. At the time of monitoring, mouse activity adjacent to each transect is recorded and the property owner contacted to identify viewed levels of on farm mouse activity and any control actions taken. The percentage of card consumed provides an indication of the amount of activity occurring at a location but not definite numbers of mice present.

2014 ACTIVITIES

Over 2014 monitoring occurred at the following locations: Nyngan, Tullamore, Tullamore/Peak Hill, Alectown, Gunning Gap, Wirrinya, West Wyalong, Condobolin, Euabalong, Ungarie, Lake Cargelligo, Weethalle and Rankin Springs. Monitoring activities occurred in: March; when populations are at their greatest; June, post sowing to identify the mouse population density; and, September/October to gauge relative breeding activity.

Table 1 below, identifies regions and levels of mouse activity recorded over monitoring periods. Verbal communication with CSIRO staff have identified that over the 2014 mouse activity within our region can be clas-sified as low. Overall, the greatest amount of activity observed was in the September breeding period, followed by March when mouse numbers are considered to be at their highest. It can be viewed that mouse activity was greatest within the cropping areas (ie; stubble and crop vegetative stage) during March and June. In the September monitoring period the greatest levels of mouse activity were recorded in areas external to the cropping areas (ie; fence lines & roadways with some form of vegetation present). This displayed movement of highest mouse activity from the cropping areas, to areas external to the crops, can be theorised to be influenced by the breeding activities known to occur during the September period as these areas provide key refuge and breeding habitats (Brown et al, 2004).

CONCLUSION

SAMPLE PERIOD	REGION	SAMPLING AREA	VEGETATION STAGE	CHEW CARD % EATEN
March 2014	Gunning Gap	Wheat Stubble	Pre-sowing	0.005
March 2014	Gunning Gap	Wheat Stubble	Pre-sowing	0.015
March 2014	Lake Cargelligo	Wheat Stubble	Pre-sowing	3.5
March 2014	Nyngan	Weedy pasture some	Established	0.25
March 2014	West Wyalong	Wheat Stubble/Standing	Pre-sowing	0.01
March 2014	West Wyalong	Wheat Stubble	Pre-sowing	0.06
June 2014	Rankin Springs	Canola	Budding	0.1
June 2014	Tullamore/Peak Hill	Wheat	Seedling	0.005
June 2014	Ungarie	Vetch	Tillering	0.5
June 2014	Wirrinya	Canola	Budding	0.9
September 2014	Alextown	Barley	Flowering	0.035
September 2014	Gunning Gap	Weedy roadside	Established	0.685
September 2014	Lake Cargelligo	Native vegetation	Established	0.005
September 2014	Lake Cargelligo	Wheat	Flowering	0.5
September 2014	Tullamore	Weedy fence line	Established	0.28
September 2014	Ungarie	Barley	Flowering	0.25
September 2014	Ungarie	Native vegetation	Established	0.0425
September 2014	Weethalle	Native vegetation	Established	0.065

Table 1. Recorded mouse activity by: region by vegetation type & stage.

Following this one year of observations it would seem that in 2014 proactive mouse control measures would have been best applied during the breeding/September period along areas external to the crop-ping zone. This would have provided a number of benefits (as per; Brown, 2007): 1) the population was seemingly concentrated which would have enabled targeted control measures to be applied; 2) as the population was concentrated less baits would have to be applied to achieve an effective rate of coverage rate. Less baits = less cost of control measures; and, 3) controlling the population during the September breeding events could significantly reduce future populations levels and consequently the potential impacts of mice upon future cropping operations.

In 2015 mouse monitoring will continue at all of the regional sites. To further identify mouse population dynamics CWFS will also be in contact with further persons from each region to identify mouse activity perhaps not recorded by monitoring activities. To be involved in mouse monitoring, or if you have any observations or queries, don't hesitate to call Nick Hill at CWFS on 02 6895 1038 or 0437 612 140.

REFERENCES

Brown, P.R., Davies, M.J., Croft, J.D. and Singleton, G.R. 2004. Can farm management practices reduce the impact of house mouse populations on crops in an irrigated farming system? Wildlife Research. 31: 597-604.

Brown, P.R., 2007. Reducing the impact of feral house mice in agricultural ecosystems. Pest or Guest: the zoology of overabundance. Pp 8-15. Royal Zoological Society of New South Wales.

Pople, A., Scanlan, J., Cremasco, P., Farrell, J. 2013. Population dynamics of house mice in Queensland grain growing areas. Wildlife Research, 40: pp 661-674.