2004 OREGON ADULT GRASSHOPPER SURVEY SUMMARY

The Klamath Marsh in Klamath County experienced extremely high densities of clearwinged grasshopper (*Camnula pellucida*) populations this summer, with estimates as high as 1,000 nymphs per square yard in some areas. One landowner treated 120 acres of egg beds with an application of carbaryl ground bait early in the season. ODA/APHIS provided technical assistance (e.g., grasshopper densities, maps, application recommendation) to private landowners who organized a successful treatment of over 14,000 acres in early June, using an aerial Dimilin RAATS (Reduced Agent and Area Treatments) application. In response to ODA/APHIS survey information, carbaryl bait was aerially applied in July to treat approximately 600 acres on western borders of the Klamath National Wildlife Refuge. Subsequently, private landowners re-treated 7,800 acres with aerial applications of malathion for high densities of grasshoppers that had migrated from large, untreated areas of the Refuge to re-infest their range. High densities of grasshoppers on the eastern borders of the Refuge and adjoining US Forest Service land were not treated due to conflicts over acceptable treatment options. The presence of bald eagle nests limits treatment options, and liquid aerial treatments, such as Dimilin, are currently not permitted by a Ninth Circuit Court injunction. Late season surveys indicate that at least 21,000 acres on the Klamath Marsh have the potential for economic levels of infestations (at least 15 grasshoppers per square yard) next year. Central marsh areas did not have significant densities of grasshoppers late in the season. Late season population numbers and egg deposition activity are not at the extreme levels observed in 2003. Predictions for next year are difficult because grasshopper hatching and development is dependent on 2005 winter and spring weather conditions.

Harney County also experienced economic levels of infestations of *C. pellucida* from southeast of Burns to Crane and New Princeton. Private landowners treated approximately 2,300 acres in this area with aerial applications of malathion. This could be a problem area next year if weather is favorable for grasshopper development. In addition, about 3,000 acres of private land was treated with malathion near Fields in the southern part of the county. Economic levels of *C. pellucida* were also observed near Silver Lake in Lake County where 10,500 acres were privately treated with an aerial application of Dimilin in June.

The 2004 adult grasshopper survey indicates that other counties in eastern Oregon have small areas of moderate infestation (8 to 15 grasshoppers per square yard). Gilliam, Umatilla, and Wheeler counties each have 100 to 300 acres of rangeland with grasshopper densities at these moderate levels. The dominant species in these counties are *Melanoplus sanguinipes* and *Oedaleonotus enigma*. Baker County has one area of approximately 6000 acres with moderate numbers near Richland. The dominant species are *M. sanguinipes* and *M. packardi*. There are approximately 3,000 acres in northeastern Malheur County with moderate densities of *O. enigma* and *Aulocara elliotti*. These areas should be monitored for an increase in grasshopper numbers in 2005.

A reported infestation of Mormon cricket (*Anabrus simplex*) in the Jordan Valley near the Idaho border was checked by ODA in May. The infestation was subsequently treated by a private landowner. Mormon crickets are prevalent across the border in Idaho and this infestation may be indicative of future problems.

The table (see accompanying map) below represents an estimate of the acreages that may have economic levels of grasshopper infestations in 2005 (n ≥ 15 per square yard). The estimates are based on the 2004 adult sentinel site survey results, additional information from applicators, and a late season survey at the Klamath Marsh. We cannot reliably predict where grasshopper outbreaks will occur because outbreaks depend greatly on climatic conditions at the time of hatch and early development, factors which cannot be accurately predicted. However, the numbers here (and shaded areas on the accompanying map) serve as indicators of potential problem areas for 2005.

2005 Potential Economic Grasshopper Areas

County	Site(s)	Acres infested	Ownership
Baker	near Richland	6,000	private
Harney	Burns-New Princeton, Fields	50,000	private, state
	Malheur Refuge	2,000	USFWS
Klamath	Klamath Refuge	16,500	USFWS
	Klamath Marsh	4,500	USFS
	Klamath Marsh, Langell Valley	12,000	private
Lake	Silver Lake	10,000	private, state
Malheur	Keeney Pass vicinity	3,000	private, state
	Total	104,000	

Diana Kimberling, Ph.D.
ODA, Plant Division
Salem, OR 97301