MIDGE-FREE WHEAT SEEDING DATE RECOMMENDATIONS: AN EXCEEDENCE PROBABILITY APPROACH

E.J. Bechinski

Division of Entomology, University of Idaho, Moscow, ID 83844-2339, USA

A degree-day model that forecasts flight activity of the wheat midge, *Sitodiplosis mosellan*a [Diptera: Cecidomyiidae] was used with a degree-day model that predicts spring wheat growth stage so as to identify seeding dates that allow plants to escape pest infestation by flowering out-of-sequence with midge oviposition. Long-term planting date recommendations for "average" years were derived by computing degree days from 30-year daily mean minimum (T_{min}) and maximum (T_{max}) air temperatures.

Adequacy of these long-term average recommendations during atypically warm or cold years was determined by statistically estimating probability exceedence temperatures, the

daily minimum:maximum air temperatures expected 1 year in 5 for two scenarios:

"warm year"	30-year daily mean T_{min}	+ (SE)(z)
	30-year daily mean T_{max}	+ (SE)(z)
"cold year"	30-year daily mean T_{min}	- (SE)(z)
	30-year daily mean T_{max}	- (SE)(z)

where SE = standard deviation computed for each day and z = standard normal variate for p = 0.2 (i.e., 1-year-in-5).

During "average" years, models predicted that crops seeded during late April are at highest risk for midge infestation, while fields seeded before 11 April or after 7 May escape infestation because they respectively flower before or after midge flight. Under the 1-year-in-5 warm and cold scenarios, these dates respectively were advanced or delayed 3 weeks. Hence, growers who routinely followed average planting date recommendations would avoid infestations in all but their late seeded crops during cold years and in all but their early seeded crops during warm years. A pragmatic IPM recommendation is to seed as early as agronomically possible.