

## LITERATURE CITED

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**SHADOW SAMPLING: A FAST, PAINLESS METHOD FOR COLLECTING FALL ARMYWORM EGG MASSES—(Note).** After the release of the egg parasite *Telenomus remus* (Nixon) in S. Florida much time was spent attempting to recover it from field collected *Spodoptera frugiperda* (J. E. Smith) egg masses. *S. frugiperda* prefers young corn and generally oviposits on the underside of the leaf. Eggs are usually collected by removing the plant from the soil and inspecting it or by looking on the underside of the leaves with the plant in situ. While collecting egg masses, it was discovered they appear as dark spots showing through to the upper surface of the leaf when the plant is in the sampler's shadow. The technique of using one's shadow to find the egg masses is hereafter called the "shadow method". To use the shadow method the sampler simply walks so as to cast his shadow to one side and over the plants so the leaves can be inspected visually for eggs. This note compares the 3 methods mentioned above of sampling for *S. frugiperda* egg masses on corn.

Three collecting methods were compared for efficiency by sampling 8 plots of corn. The number of egg masses found and the time required to sample each plot were recorded. Each plot was 50 ft long with plants approximately 6 in. apart in the row. The plants were stage 5 (J. J. Hamway, 1966, Iowa St. U. Special Rep. no. 48) when the methods were compared. First the plots were sampled by the shadow method, then the undersides of all the leaves were inspected, and finally all plants in the plots were pulled and examined.

TABLE 1. COMPARISON OF 3 METHODS OF COLLECTING *S. frugiperda* EGG MASSES ON CORN.

Method	No. masses collected	Time required (min.)	No. masses collected/min.
Shadow	2.5a*	1.07a	2.36 ns
Whole Plant in situ	5.5a	2.32b	2.37
Whole Plant Removal	16.1b	11.88c	1.36

\*Means not followed by a common letter are significantly different (Duncan's Multiple Range Test;  $P \leq 0.05$ ).

Whole plant examination yielded the most egg masses per plot but required the most time (Table 1). There were no statistical differences among the 3 methods when the numbers of masses collected per minute were compared, although the shadow and whole plant in situ tended to yield more.

Choice of the appropriate collecting method will depend on the objective of the study and the amount of corn to be sampled. Whole plant removal and inspection would be the best method if only a limited amount of corn is available and maximum numbers of egg masses needed. This, however, destroys the host plant. Inspection of the plants in place could be used for collection where plant destruction was objectionable. The collector becomes fatigued quickly with this method due to constant stooping required to see the lower leaf surface. If collections are to be made in large fields or where the collector is not concerned about the small percentage of the egg masses found, the shadow method would be best. It is not destructive and does not require much bending over the plants, thus allowing the collector more time to work before becoming fatigued. I found this method satisfactory in collecting *S. frugiperda* egg masses to hold for parasite emergence.—Van H. Waddill, University of Florida, Agricultural Research and Education Center, Homestead, Florida 33031.