

# Baited traps monitor insect populations, can predict outbreaks of pest activity

■ The most common use of chemical attractants is in traps to monitor insect populations.

Although not all of the compounds used in this manner are pheromones, many publications refer to all attractant-baited traps as pheromone traps.

For use in monitoring, chemical attractants usually are impregnated or encased in a rubber or plastic lure that slowly releases the active component or components over a period of several days or weeks.

Traps containing these lures use an adhesive-coated surface or a funnel-shaped entrance to capture the target insect. Traps for some pests are coated with an adhesive that also contains the chemical attractant.

Attractant-baited traps are used instead of or in addition to other sampling methods for two major reasons.

First, these traps are very sensitive and may capture pest insects that are present at densities too low to detect with a reasonable amount of effort using other inspection methods. This attribute can be extremely important when the goal of a sampling program is to detect foreign or "exotic" pests as soon as they enter an area so that control measures can be initiated immediately.

Second, traps baited with chemical attractants capture only one species or a narrow range of species. This specificity simplifies the identification and counting of target pests.

Sensitivity and specificity make attractant-baited traps efficient, labor-saving tools.

Attractant-baited traps are used in monitoring programs for at least three purposes:

- to detect the presence of an exotic pest, which is an immigrant pest not previously known to inhabit a state or region;
- to estimate the relative density of a pest population at a given site; and
- to indicate the first emergence or peak flight activity of a pest species in a given area, often to time an insecticide application or to signal the need for additional scouting.

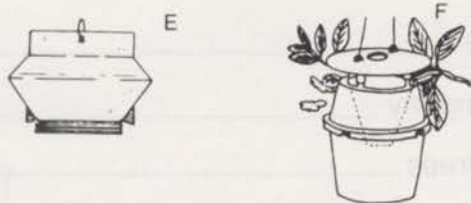
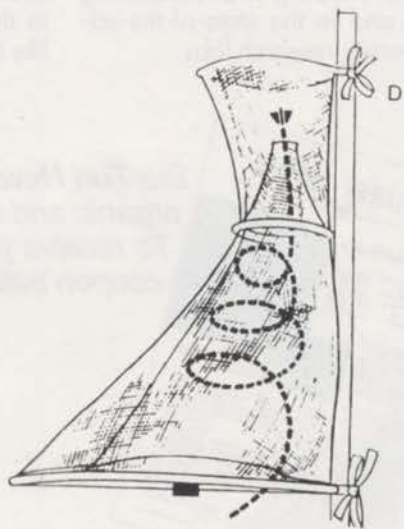
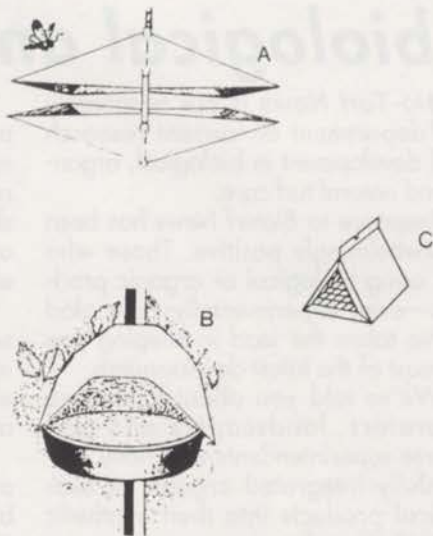
The use of traps to detect exotic pests has been demonstrated in widely publicized efforts to detect and eradicate pests such as the gypsy moth and the Mediterranean fruit fly whenever infestations are detected in new areas.

Although attractant-baited traps give an indication of pest density, several factors make the interpretation of density estimates complex and difficult. First, environmental factors affect trap catches. Temperature, rainfall, and wind speed and direction influence attractant release from lures and insect flight. Many insects fly and respond to baits only at certain times, such as dawn, midday, dusk, night, etc. and then only if temperatures at that time exceed a minimum level (often 50° to 60° F).

Wind speed and direction determine the extent of insect movement from surrounding areas to traps within a field or orchard.

Further complications can result from the fact that almost all attractant-baited traps are used to capture adult insects.

Attractant-baited traps can be used to signal the need for additional sampling efforts for to time insecticide applications and eliminate unnecessary spraying.



Commercially-available traps used for monitoring insect populations include: (A) the "wing" trap; (B) the water pan trap; (C) the Delta trap; (D) the Heliothis trap; (E) the Perocon II trap; and (F) the funnel trap. Other designs are available.