water surface that spread a thin layer of 2,4-D across the surface. Sinking pellets, by density adjustment can be made to penetrate or rest on bottom mud, that release herbicide where rooted plants are the most vulnerable. Suspending strands that hang vertically in the water. What we call "top suspenders" release 2,4-D in the first 6 inches of the water and are extremely effective in small pool tests against Water Hyacinth. In fact they tend to entangle in the roots of this floating plant. Bottom suspenders that release in the six or so inches of water just above the water bottom. All of these forms can be encapsulated in a heavy clay binder that, when dispersed in water, breaks foliage, sinks to the bottom, and degrades, slowly releasing pellets or suspenders. By proper choice of a binder release time is controllable. Figure 3 illustrates these concepts.

Now what does this all mean? If the laboratory results translate to the field we will not only be able to control aquatic weeds at 1/15 to 1/100 present dose levels, but extend between-treatment times to perhaps several years. In other words, we reduce contamination while saving money in labor costs.

A dose of 20 ppm held for 1 day, with retreatment twice a year gives an annual average dose of 164 parts-per-billion per day. We know that control under laboratory conditions is feasible at 10 parts-per-billion per day and probably at 1 ppb/day.

It is our belief that the future will see a great deal of research into slow release pesticides with many resulting commercial products of benefit.

Abbott Laboratories Releases Brochure

A new brochure, "Dipel and the Gypsy Moth," is now available from Abbott Laboratories. Dipel Biological Insecticide recently received Federal registration by the Environmental Protection Agency for the control of Gypsy Moth and certain other caterpillar defoliators of ornamental, shade and forest trees.

The brochure, in question and answer form, provides information on how to use the product under a variety of conditions. Dipel is registered for control of Gypsy Moth, elm spanworm, spring and fall cankerworm, bagworm, fall webworm and Red-Humped caterpillar (California only).

For more details, circle (719) on the reply card.

Insects In Weed Control To Be Studied

Insects to control weeds will be studied in a five-year program to be conducted by Virginia Tech.

Weeds have been estimated to cause more damage to crops than insects and diseases combined. Many insects, however, feed on weeds. Their use as a non-chemical means of weed control will be explored during the study.

According to Robert L. Pienkowski, professor of entomology and director of the project which is funded by the Cooperative State Research Service, USDA, researchers will identify and determine the distribution and abundance of insects attacking important weed species in Virginia.

Among the weed species to be studied are wild garlic, Johnsongrass, curled and musk thistles, crabgrass, morningglory, yellow nutsedge, horse nettle, fall panicum and ragweed.

The research complements work being done by Virginia Tech on control of musk and curled thistle through use of an imported weevil.