GYPCHEK® USE PATTERN REALITIES

John D. Podgwaite
USDA Forest Service, Northeastern Forest Experiment Station,
51 Mill Pond Rd., Hamden, CT 06514

ABSTRACT

Gypchek® is the gypsy moth *Baculovirus* product developed by the U.S. Forest Service and registered with the U.S. Environmental Protection Agency in 1978. It has since been reregistered (1988) as a minor use pesticide.

The product was originally intended as a gypsy moth suppression tool whose value would be maximized in those situations where environmental concerns precluded the use of either broad-spectrum chemical, or microbial, pesticides.

Recent refinements in formulation have improved product performance and Gypchek® is now viewed by many resource managers as a "substitute" for either *Bacillus thuringiensis* (Bt) or Dimilin products. Under certain conditions Gypchek® may be an adequate substitute, but the innate biological and physical characteristics of the present product, coupled with high costs associated with its production and application, must temper the urge towards "all-purpose" use.

Promising research with new virus strains and with formulations that provide enhanced foliar persistence, portends well for the eventual expansion of Gypchek's® use pattern. While awaiting this, resource managers can rely upon this "specialty" product, available in limited quantities, for use in situations where no environmental insults from broad-spectrum pesticides can be tolerated.

CURRENT RESEARCH EFFORTS WITH *BACILLUS THURINGIENSIS*

Normand R. Dubois
USDA Forest Service, Northeastern Forest Experiment Station,
51 Mill Pond Rd., Hamden, CT 06514

ABSTRACT

The bioassay of 260 strains of *Bacillus thuringiensis* (Bt) and 70 commercial preparations show that regression coefficient estimates may be as critical as LC_50 estimates when evaluating them for future consideration. Also most of the last group of 81 Bt strains present in the NRRL-HD culture collection, have been bioassayed. The results of this massive evaluation of all Bt strains available from such a large collection will be discussed. The proteins, coded from the cryIA(a), cryIA(b) and cryIA(c) genes of both the HD-1 and NRD-12 strains of Bt differ in their insecticidal activity against second instar gypsy moth. Finally, field efficacy of Bt appears to be optimized by use of high viscosity and specific gravity formulations applied at high dose and volume rates. Results of 1989 field studies indicate that a healthy and increasing pest population can be consistently reduced to less than 50 egg masses per acre.