Cocksfoot contained a much smaller percentage of unknown constituents than forage plants examined so far. There appears to be an appreciable amount of organic acids (50 per cent.) in this fraction in rape, and a chromatographic analysis showed the presence of three acids—citric, malic, and one other. Paspalum also contained malic and citric acids.

The work is being continued further to identify these acids and estimate their contribution to the fraction.

Apiculture

Wasp Control.—Field work was carried out on methods of combating the recently-introduced wasp, *Vespa germanica.* It was discovered that the queens of these wasps were attracted to certain plants and hedges in the spring by honey-dew excreted by insects infesting them. The plants act as natural lures, and when sprayed with D.D.T. are converted into poisoned baits which provide a valuable means of destroying the queen wasp in its susceptible phase. Power spraying with D.D.T. of large oak-trees which similarly attracted queen wasps in great numbers also proved an effective means of destroying queens. It was found possible to attract queen wasps by means of a synthetic honey-dew which was unattractive to hive bees. The Horticulture Division collaborated in this work.

Artificial Insemination and Progeny Testing of Queen Bees.—It has long been realized by commercial apiarists that great differences in performance exist between queen bees, and breeding from selected queens for desirable qualities is the accepted practice. The mating of queen bees with drones can take place only in the air, and hence, while the queen could be raised from approved stock, no satisfactory control existed over the type of drone which would mate with her, and breeding was a haphazard affair. Recently a technique was developed in the United States of America for the instrumental insemination of queen bees. The application of this method and progeny testing with a view to improving existing strains of hive bees was begun at Wallaceville. The technique of insemination was mastered and successfully-inseminated queens were kept under observation in the laboratory apiary. Breeders of queen bees who will furnish suitable stock for breeding will collaborate in the project.

Poison Honey.—Work was continued on the extraction of new toxins from toxic honey, using a superior method of extraction. The toxicity of different portions of *Coriaria arborea* and *Coriaria sarmentosa* was further investigated.

Treatment of Nosema apis.—Trials of drugs against *Nosema apis*, methods of controlling growth of grass round beehives, and causes of fermentation in honey were investigated.

Wallaceville has been declared a quarantine-station for imported queen bees, which are passed free from disease there before being despatched to their importers.

Publications

Buddle, M. B. (1948): "Vaccination against Bovine Brucellosis." *Aust. Vet. J.*, *24*, 171.

Buddle, M. B. (1948): "Immunity in Cattle Vaccinated with *Brucella abortus* Strain 19 by the Subcutaneous and Intracaudal Routes during Calfhood." *Aust. Vet. J.*, *24*, 262.

Cunningham, I. J. (1948): "Tall Fescue Grass is Poison for Cattle." *N.Z. J. Agric.*, *77*, 519.