The climate in the highlands of Malaysia is suitable for the cultivation of subtropical crops. The main region where subtropical vegetables and flowers are intensively cultivated is the Cameron Highlands (1070-1830m above sea level), where many farms are built on hill-slope terraces and platforms. Intensive farming activity and steep slopes have resulted in high erosion rates. To compensate for nutrient loss by erosion, large amounts of organic fertilizers have been applied (up to 84 mt/ha initially), accompanied by chemical pesticides to prevent crop failure. The applied fertilizers and chemicals have resulted in water pollution. The surface water in vegetable areas is polluted by sediments, often as much as 82 mt/ha/yr. In contrast, in tea plantations and where flowers are grown in rainshelters, soil losses are only about 1 mt/ha/yr. On vegetable farms, the level of the nutrients lost in runoff is equally high, at about 43 kg N, 2 kg P and 109 kg K per season per hectare. Nutrient losses of similar magnitude through leaching have also been recorded. The concentration of nitrate in surface runoff and leachate frequently exceeds the acceptable limit of 10 ppm. In contrast, the level of pollutants in runoff from flower cultivation under structures is very low, with a nitrate concentration of less than 10 ppm. A high degree of pesticide pollution at the farm level was observed. However only a few pesticides (endosulfan, diazinon and chlorpyrifos) persist up to the subcatchment level. In water catchment areas, the pollution caused by both fertilizers and pesticides is much lower. Nevertheless, if agriculture continues to replace forest in future, the risk of pollution of water resources will increase.

News source: MARDI, Serdang, Malaysia.

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Medicated urea molasses mineral blocks (MUMMB) to control gastrointestinal parasites in goats

Gastrointestinal parasites in ruminants cause significant production losses due to mortality, lower production of milk and meat, and reduced work potential. Studies reveal that annual losses due to parasitism may reach 10%. To reduce parasitism, an effective and sustainable deworming program must be implemented. The use of medicated urea molasses mineral blocks (MUMMB) to control gastrointestinal parasites in goats was tested. MUMMB was considered a valuable approach to worm control, together with other management practices, because it involves less stress in handling the animals than administering dewormers. The MUMMB is a feed supplement block enriched with non-protein nitrogen from urea, minerals, energy from molasses, rice bran and 0.75 g/kg Fenbendazole (dewormer). In the study by Cruz et.al. of the Central Luzon State University, Nueva Ecija, Philippines, one herd of 10 goats were given free access to MUMMB, while the other group used an unmedicated block. The effects of MUMMB on parasitic load, packed cell volume (PCV) and gain in weight were measured. Results revealed that goats given MUMMB had a lower parasitic load than those given urea molasses mineral block (UMMB) only. Moreover, the packed cell volume and gain in weight were comparable. Initial results of the study showed that MUMMB is effective in controlling gastrointestinal parasites in goat.

News source: The Philippine Council for Agriculture, Forestry and Natural Resources Research and Development

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PCR AND RFLP methods were used to identify genotypes of B-Lactoglobulin (B-LG) and Kappa-Casein (K-CN) in 145 blood samples from cattle and 33 cattle embryos.

1) Three genotypes of B-LG gene were detected by digestion of amplified fragments with endonuclease Hae III. They were expressed as AA, AB, and BB, whose frequency was 10.3, 33.8 and 55.9%, respectively. The frequency of allele A (27.2%) was lower than that of allele B (72.8%). Among these genotypes, BB type had the highest dairy productivity, followed by AB and AA in this order.

2) As to the genotypes of K-CN, three types were detected, namely AA, AB, and BB, whose frequency were 54.5, 27.3 and 18.2%, respectively, for bulls, and 67.2, 29.7, and 3.1%, respectively, for dairy cows. The frequency of allele A (82.0%) was higher than that of allele B (17.9%).

3) Twenty females and 9 males were sex-discriminated from a total of 33 cattle embryos at the age of 7 days. That is, the sex of 88% of embryos was successfully discriminated.

4) Thus it was concluded that the PCR-RFLP method can be used in breeding programs to increase dairy productivity and to discriminate the sex of cattle embryos at the age of 7 days.

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Suppression of Vegetable Aphids by the Predator Chrysopa Pallens (Neuroptera: Chrysopidae)

SUPPRESSION of cotton aphids and green peach aphids by the predator Chrysopa pallens Ramber was investigated. Third instar larvae of C. pallens consumed on average 29.8 apterous individuals (i.e. without wings) of Aphis gossypii Glover when kept at 17°C. They consumed 77.9 aphids when kept at 22°C, 133.6 aphids when kept at 27°C, and 155.7 aphids when kept at 32°C. Preoviposting females consumed 73.1 individuals, ovipositing females 86.6 individuals, and adult males consumed 69.7 individuals of apterous Myzus persicae (Sulzer) each day at 27°C. The functional response curve of the larvae and adults of C. pallens to the densities of A. gossypii indicated Holling’s Type II: the total consumption of prey by C. pallens increased with prey density, but the consumption rate per predator decreased. The attack rate of 3rd instar of C. pallens was the highest among the 2nd instar, 3rd instar, adult males and adult females, and the handling time was the shortest. An ideal ratio of predator to prey to effectively suppress populations of A. gossypii by releasing C. pallens eggs was 1:4 on red pepper and eggplant, and 1:3 on cucumber. Release of the second larval stage of C. pallens at a ratio of 1:30 predator:prey satisfactorily controlled A. gossypii on red pepper, and 1:20 on cucumber and tomato. Three introductions of the eggs of C. pallens were as effective as four applications of insecticide from mid-June to late September.

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