The leaves of Ocimum suave and the cloves of Eugenia caryophyllata, used as grain protectants in parts of Eastern Africa, yield essential oils that are repellent to the maize weevil Sitophilus zeamais in olfactometric assays. Eugenol, a common constituent of the two, has been found to be a potent repellent of the weevil. These results demonstrate a possible scientific rationale for the use of these plants as grain protectants by communities in East Africa.