

**Project Title:**

A study of the distribution of economically significant weevils in the deciduous fruit industry.

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**Objectives and Rationale**

The objectives of this project will include: 1) determination of the influence of soil type on weevil distribution, 2) determining the influence of orchard floor management practices (eg, cover crops), 3) establishing the relative abundance of economically important weevil species and user-friendly keys for the identification of the species involved. The aim of this study will be to yield valuable information in developing improved weevil management related to both soil texture and cover crop variability (cultural control methods), as well as prioritizing the species that should be targeted for management purposes.

**Methods**

Farms with a history of weevil infestations will be selected in two-three regions (e.g. Ceres, Elgin and a coastal region). Monitoring will take place once per month, using weevil bands (double-sided cardboard bands) and plant (buds, leaves, stems and fruit) damage assessments. Collection of geographic and biological attributes will include: soil, slope, location, orchard design (nr. Trees/vines/ha, row spacing, irrigation, fertilization etc...), cover crop assessment (type, estimation of % cover, ratio between broad leaf and grass species).

**Key Results**

There were nine weevil species found to occur in apple orchards and vineyards, all belonging to the family Entiminae (root weevils). A peak in adult populations were reached between November and December, after which the population dropped drastically from January up to May. *P. callosus* was the most abundant weevil species and it accounted for 82 % of all the weevils collected during the survey. Most damage took place during the pre-thinning assessment and to a lesser extent in the pre-harvest assessment. Most of the damage in apple orchards and vineyards was attributed to *P. callosus*, with the remaining weevils contributing to some damage. The results further indicated that there was no significant ( $P = 0.05$ ) relationship between either soil chemistry, soil bulk density, soil texture, ground cover percentage and weevil population.

**Key Conclusion of Discussion**

This study identified and recognized nine weevil species causing damage in vineyards and apple orchards in the Western Cape Province, South Africa, of which one was recorded for the first time in vineyards, as well as assessing the effect of abiotic and biotic attributes towards the population of weevils on these crops.

**Recommendation to Industry / Key take-home message**

Monitoring should take place starting in early October and control should be applied as soon as weevils are noticed. Abiotic factors were not found to play a role in this study, but should be assessed over a larger area, for a longer time period.