

Field Excursion

Santam Agriculture Research Farm

Mooihoek, Bainsvlei



The research farm in Bloemfontein

The Santam Agriculture research farm, Mooihoek, is situated in the Bainsvlei/Waterbron area of the Bloemfontein district. The total area of this farm (smallholding) is only 8.8 hectares. A permanent overhead irrigation system (Floppy) serve 3 hectares. On another 1.5 hectares there are 160 pecan nut trees, plus a few walnut and olive trees. All these trees were simply planted to utilise the land and get to know the products and cultivation practises, and no specific research is being done on trees and other permanent crops. When actual hail damage does occur, then valuable observations can be made. The rest of the area is taken up by the infrastructure (guest house, lecture room, sheds and housing for farm personnel) as well as the headlands and a small piece of natural veld.

On the 3 hectares under irrigation, we follow a crop rotation system, which means that only 2 hectares are actually planted each year.

For the past 38 years, Santam Agriculture (with its predecessors) have been doing crop research trials specific for the study of simulated hail damage on agricultural crops. Apart from totally “new” crops like Kenaf, it is also vital that at existing assessment procedures, loss tables and factors be re-investigated every 5 – 7 years, to ascertain that it is still valid. This is due to the fact that the breeders are constantly improving on crops regarding yield, disease and herbicide resistance, with newer cultivars which might react slightly different to actual hail damage.

On the research farm trials are done on the main summer annual crops. This would mainly be the grain crops, but also includes (or included) some vegetable crops. This research then leads to the compilation of new hail assessment procedures, or simply the adaptation or updating of existing procedures. Accurate assessment procedures are used to assess actual hail damage on insured fields.

Meaningful results can only be obtained if we have well documented growth stages that cover the complete lifecycle of each crop, which we divide into a vegetative (V-) and reproductive (R-) phase. These must be accurate, yet practical enough that assessors can easily and accurately determine the growth stage that insured fields were damaged by hail or other insured perils. This is the cornerstone of accurate assessments.

Hail simulation trials are done for example by physically removing predetermined percentages of leaf area (25%, 50%, 75% and 100%) by hand or using sheep shears, at specific growth stages. A randomized block design with three replications are used. The hail damage simulation may be on plant population, stem-, seed- and leaf damage. At the end of the season all trial plot are harvested, thrashed and cleaned, and then weighed. This is then statistically analysed to get the results (percentage crop loss) for each treatment. One single set of results is never used as such, but trials are repeated to obtain at least five sets of results before this is then used to compile or adapt procedures.

More or less half a hectare is yearly used to plant “mini” trials for demonstration purposes only, where we host our farmers information days. This is to demonstrate the importance of growth stage and intensity of damage interaction at different crops.