SENSAKO
Beproefde Genetika · Proven Genetics

Sensako Oats grazing report

Sensako Research Report for summer and winter grazing crops.

Objective and aims of the Grazing R & D program:

- To develop oats cultivars adapted to the different production conditions under which oats is produced in Southern Africa for grazing as well as grain and milling purposes.
- To develop and test rye cultivars for the winter grazing period under dryland and irrigated conditions.
- To develop and test grain sorghum material and identify best suited germplasm and cultivars for the summer grazing utilization.
- To develop and test suitable maize cultivars for utilization as silage and grazing purposes.
- The possibilities of feed quality wheat and barley grain are also investigated as options in the feed market for grain products.
- In addition to above-mentioned objectives, resources have also been implemented towards:
  - Gaining access to germplasm needed to ensure local competitiveness – Australia, Germany, United Kingdom, Brazil, Argentina, Paraguay and Uruguay.
  - Sampling the production environment, using a well-developed site for running nurseries, and off-site locations for trials.
  - Establish crossing facilities to generate new local adapted germplasm
  - Establish facilities to protect parental plants and to speed up generation time.

1.1. **Technical layout of the programme:** The program reports to Dr Francois Koekemoer, Wikus Bergh and Dr Willem Otto is overseeing the technical aspects of the programme, Elaine van Eeden supports the program by multiplying imported seed and is also responsible to speed up the generation time. Willem Otto will be doing the field testing in the Northern production areas and Driecus Lesch will be doing the field trials at the Southern production areas. Crosses between South African and international germplasm will aim to generate between 20-30 new crossing combinations per annum. The F1 seed will be multiplied in the tunnels at Bethlehem. The segregating populations will be multiplied in the tunnels as a single seed descent multiplication. We will try to fit two to three multiplication cycles in per annum. As soon as the seed is pure breeding, then it will be multiplied to provide enough seed for a single replicated trial in three localities namely Bethlehem, Hartswater and Napier. Selections made from these trials will advance to the elite trials that will be planted in more localities in the various oats production areas. The identified lines with good and stable yields, acceptable crown rust resistance and with good hectoliter mass will be commercialized as breakfast cereal. Lines with good tillering capacity and vegetative mass will be commercialized as forage oats.

1.2 **Short term goals achieved the past season**:

- During 2012 season germplasm had been imported from Germany, Australia and Argentina, at total of 95 lines had been imported, unfortunately we had received only 5 grams per lines and this material had been multiplied in single rows. Roughly 100g of seed per line had been generated. Most of the lines were spring types except for the German lines. The spring germplasm had been planted in single replicated trials at Napier and Hartswater. The winter germplasm had been planted at Bethlehem and Hartswater as single replicated trials. The best agronomic material will then advance at the end of the season to the Elite trials.

- An international visit had been undertaken to Southern America (Argentina, Uruguay and Brazil) in June 2013 to obtain new sources of germplasm. The breeding programme of INIA in Uruguay is one of a few breeding programmes that is still actively breeding for new varieties. Uruguay is on the same latitude than South Africa and therefore there oats lines should be well adapted in South Africa. Sensako oats cultivars had been send to INIA for the breeder to make crosses and purify the lines. Sensako and INIA will then test all the newly generated material in both countries. From the data generated at Napier it is evident that some of the introductions was shorter in height than the commercial checks, had similar or even better hectoliter mass values, and yields similar than the commercial checks. These varieties will tested at more localities in the Western Cape during the 2014 season. Table 1. Grading requirements of oats for milling purposes Grade Minimum hectolitre mass (kg/hl) Grade 1 53 Grade 2 48 Feeding grade 38 Oats trials planted this season at Napier, long strips had been planted in order to accommodate cutting of the forage yield potential Oats trials planted at Bethlehem research station under dry land conditions The winter oats varieties tested produced high yields, however due to the severe drought that occurred the yield levels was much lower than the long term average of 2,5 tons/ha. However most of these material together with the material identified under irrigation to be suitable for forage purposes had been planted this year at Bethlehem, the forage potential together with the grain yield potential will be evaluated this season. The grain yield data for the oats varieties tested under irrigation does not produce yield that will match that of the popular wheat varieties grown under irrigation. However varieties that identified to be suitable for forage purposes had been planted this season at Bethlehem research station under irrigation conditions.