

KULTIVAREVALUERING

Inligting rondom die kultivars wat deur die produsent aangeplant word, is van kardinale belang. Dit beïnvloed 'n groot deel van die produsent se beplanning vir die seisoen. Betroubare en indien moontlik, onafhanklike inligting rakende kultivars moet aan elke produsent beskikbaar wees. Die LNR - Instituut vir Graangewasse (LNR-IGG), in samewerking met landboubesighede en die saadbedryf, poog om in hierdie belangrike behoefte van die produsent te voldoen. Die onus rus op die produsent om nuwe of onbekende kultivars eers op sy plaas te toets, voordat daar op groot skaal van beproefde kultivars afgesien word.

KULTIVARINLIGTING

Die boer moet aan die einde van elke seisoen 'n baie belangrike besluit neem naamlik: Watter kultivars gaan die volgende jaar geplant word? 'n Korrek beplande kultivarkeuse kan beslis 'n belangrike bydrae lewer om risiko te verminder en moet 'n belangrike onderdeel uitmaak van 'n produsent se produksiebeplanning.

Kultivars verskil van mekaar in een of meer van 'n verskeidenheid eienskappe en elkeen het dus 'n eiesoortige aanpasbaarheid en opbrengspotensiaal. Hierdie kultivar-verskeidenheid stel alternatiewes beskikbaar wat goed benut kan word en die volgende is be-

langrike riglyne vir kultivarbeplanning wat oorweeg moet word:

- Moet nooit 'n staatmaker-kultivar binne een seisoen met 'n nuwe of onbekende kultivar vervang nie.
- Kultivarverskeidenheid versprei risiko. Plant 'n reeks kultivars wat verskil in groeiseisoenlengte en eienskappe.
- Kultivars moet aanpas by 'n spesifieke opbrengs-potensiaal, maar moet in staat wees om hoër potensiaaltoestande te benut en 'n aanvaarbare opbrengs by laer potensiaaltoestande te lewer. Kultivars met 'n wye aanpassingsvermoë kan hier 'n rol speel.
- Hersien Kultivarkeuse jaarliks.

KULTIVARBEPLANNING

'n Waardevolle hulpmiddel by kultivarbeplanning is die oesekerheidswaardes, wat 'n afleiding is van inligting wat deur die regressiegrafiek van 'n kultivar uitgebeeld word. Hierdie oesekerheidswaardes word verkry van die onderste betroubaarheidsband van die regressiegrafiek by 'n 90% waarskynlikheidspeil. Dit beteken dat die oesekerheidswaarde van 'n kultivar by 'n sekere potensiaal die minimum opbrengs is wat daardie kultivar in nege uit tien gevalle kan behaal. By die berekening van oesekerheidswaardes (opbrengste) word die opbrengsge-

neigheid, gemiddelde opbrengs en stabiliteit in ag geneem.

In die oessekerheidstabelle word die volgende inligting verskaf: Eerstens word die oessekerheidswaardes by verskillende potensiaaltoestande aange-ge- toon. Tweedens volg die gemiddelde opbrengs van die kultivar vir die stel proewe wat gebruik is. Dan volg die helling van die regressielyn waarvan die opbrengsgeneigdheid afgelei kan word. Indien die helling groter as 1.0 is, dui dit op 'n hoër potensiaal kultivar; kleiner as 1.0 dui dit op 'n laer potensiaal kultivar, terwyl 'n waarde naby of gelyk aan 1.0 dui op 'n wyd aangepasde kultivar met 'n regressielyn ewewydig aan die gemiddelde lyn. Laastens volg die opbrengstabiliteit wat deur die D^2 -waarde aangedui word. Hoe meer die D^2 -waarde neig na nul, hoe meer stabiel en voorspelbaar is die kultivar in terme van opbrengs, en hoe groter die D^2 -waarde is hoe meer sal opbrengs tussen seisoene wissel.

Die prosedure wat gevolg word vir die maak van kultivaraanbevelings is kortliks as volg: Eerstens moet vasgestel word vir watter opbrengspotensiaal aanbevelings gemaak word. Die produsent moet homself vergewis van die potensiaal wat ter sprake is. Die tweede stap is om die oessekerheidstabel te raadpleeg by die vasgestelde potensiaal. Selekteer by die gekose potensiaal daardie kultivars met die hoogste oessekerheidswaardes. Die kultivars met die hoogste waardes behoort vir u die beste kans op 'n stabiele, suksesvolle opbrengs te verseker. Indien

verdere verfyning in die keuse nodig is, kan die opbrengsgeneigdheid en -stabiliteit gebruik word. Dieselfde prosedure kan met potensiaalgebiede aan weerskante van die gekose potensiaal gevolg word vir 'n meer betroubare aanbeveling.

KULTIVARS VOLGENS MIELIE-PRODUKSIE-STREKE

Vir die doel van hierdie publikasie is die kultivarproewe ingedeel in streke volgens hitte eenhede, reënval en produksie en verder verwerk tot oessekerheidswaardes. Waar voldoende inligting

VRYWARING

Die opsteller van die dokument en enige ander bron/instansie/persoon verantwoordelik vir enige inligting genoem in hierdie dokument is na die beste wete van die opstellers korrek met druktyd. Die inligting is ontwikkel deur wetenskaplike prosesse en word in goeder trou aangebied. Enige persoon/instansie wat hierdie inligting gebruik doen dit op eie risiko en die opstellers of enige ander party sal onder geen omstandighede verantwoordelik gehou kan word vir enige verliese gelei deur enige persoon/instansie wat die inligting in hierdie dokument gebruik nie.

oor 'n betrokke kultivar beskikbaar is, is die inligting van drie seisoene saamgevoeg. Andersins is die inligting van die nuwer kultivars bekom uit die eenjarige en tweejarige data van die onderskeie groter oostelike en westelike streke. Om voldoende betroubare inligting te verskaf, is van die produksiegebiede saamgevoeg. Proewe wat in die westelike produksiegebied gedoen is, is saamgevoeg (streek 1). Proewe in die oostelike streke is opge-

deel in drie produksiestreke: matige ooste (streek 2), koue ooste (streek 3) en KwaZulu-Natal streek (streek 4). Inligting oor kultivars onder besproeiing is in twee streke verdeel: Koel tot matige streek en 'n warm streek wat in afsonderlike tabelle aangebied word. Hierdie inligtingstuk poog nie om die enigste bron van inligting te wees nie. Kultivarinligting is ook by koöperasies en die saadmaatskappye beskikbaar.

CULTIVAREVALUATION

Information on cultivars planted by producers is of utmost importance. It affects seasonal planning by producers to a large extent. Reliable and if possible independent information regarding cultivars should be available to every producer. The ARC- Grain Crops Institute (ARC-GCI) in co-operation with agricultural businesses and the seed industry attempt to satisfy the producers' requirements. The responsibility is with the producer to test new or unknown cultivars first before dispensing with the known cultivars on a large scale.

CULTIVAR INFORMATION

At the end of each season the farmer has to decide which cultivars are to be planted during the following season. A correctly planned cultivar choice can contribute greatly to reduce risk and constitutes an

important part of the producer's production planning. Cultivars differ in one or more of a number of characteristics. Each cultivar has a particular adaptability and yield potential. Variability of cultivars provides alternatives, which can be utilized effectively.

The following are important guidelines in cultivar planning which can be considered:

- Never replace a reliable cultivar with a new or unknown cultivar in a single season.
- Cultivar variability divides the risk factor. Use a series of cultivars, which differ in length of growing season and other characteristics.
- Cultivars must be adapted to a specific yield potential but should be able to utilize increased potential conditions and still deliver an acceptable yield at reduced yield potential. Cultivars with a wide adaptability can play a role under these conditions.
- Cultivar choice should be revised annually.

CULTIVAR PLANNING

A valuable aid in cultivar planning is the yield reliability values, which are the deviations from the regression graph of a cultivar. The yield reliability values are obtained from the lower reliability band of the regression graph at a 90% probability level. This means that the yield reliability value of a particular cultivar at a given potential is the minimum yield, which can be obtained in nine out of ten seasons. In the calculation of yield reliability values (yield) the yield tendency, average yield and stability are taken into consideration.

In the yield reliability tables the following information is presented: Firstly, the yield reliability values at different yield potential levels are shown. Secondly, the average yield of the cultivar for the set of trials used is presented. Thereafter the slope of the regression line indicates the yield tendency. If the slope is greater than 1.0, it indicates a higher potential cultivar; smaller than 1.0 a lower potential cultivar, while a value near or equal to 1.0 indicates a widely adapted cultivar. Lastly, the yield stability is indicated by the D^2 -values. With D^2 -values approaching zero, the cultivar can be expected to be more stable and predictable in terms of yield achievement, and the greater the D^2 -values are, the more the yield would vary between seasons.

The procedure to be followed in the making of cultivar recommendations is briefly as follows: Determine for which yield potential recommendations

must be made. This must be done by the producer (farmer). The next step is to consult the yield reliability table at the determined yield potential. Select at the chosen yield potential those cultivars with the highest yield reliability values. The cultivars with the highest values should provide one with the best chance for a stable, successful yield. The same procedures can be followed with yield potentials on both sides of the chosen yield potential for a more reliable recommendation.

CULTIVAR GROUPING ACCORDING TO MAIZE PRODUCTION REGIONS

For the purpose of this publication the cultivar trials were divided into regions according to heat unit, precipitation and production for which yield reliability values were calculated. Information pertaining to three seasons was combined where sufficient information on a particular cultivar was available. Information on the newer cultivars was obtained from data of the annual and bi-annual reports of the greater eastern and western regions. Data for certain production regions have been combined in order to obtain more reliable information. Trials conducted in the western areas (region 1) were combined. Trials conducted in the eastern areas were divided into three production regions: temperate eastern (region 2), cold eastern (region 3)

and KwaZulu-Natal region (region 4).

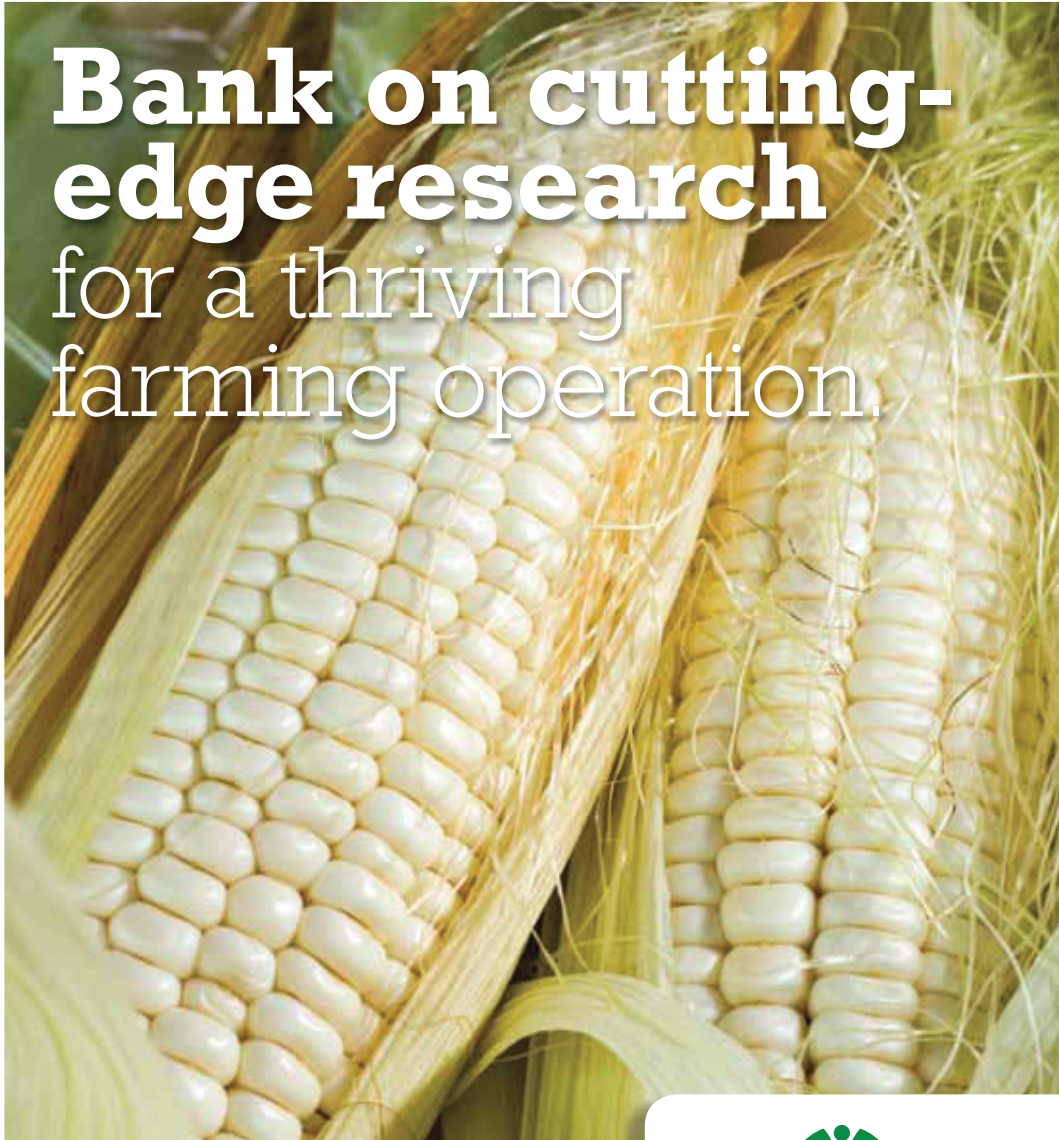
Information of cultivars under irrigation was divided into two regions: Cold to temperate region and hot region and is represented in separate tables.

Note that this brochure is not the only source of information. Cultivar information is also available at co-operatives and seed companies.

INDEMNITY

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