Gaucho®: An innovation in cotton seed treatment under African conditions
ABSTRACT

Gaucho has been very successfully introduced in many countries world-wide. The range of crops on which the product can be used extends from cotton in the USA and more than 20 other cotton countries, to sugar beets, cereals, and corn in Europe, Africa, Asia and South America. Gaucho®, based on the active ingredient imidacloprid, is a user friendly, biologically highly effective product with excellent root systemic activity. In trials performed under practical conditions in co-operation with local ginneries and cotton research organisations in African cotton growing areas, Gaucho® showed impressive biological efficacy against all important early pests, including aphids, white flies, jassids and thrips. The results and trends observed in these trials reflected exactly the findings in the laboratory and in scientifically executed field trials, namely long-lasting protection, effects on growth, and increases in yield. The findings demonstrated clearly that the use of this product and it’s associated technologies was decidedly profitable for both the cotton growers and the ginning companies. The full potential of the product is achieved when the recommended rate is applied uniformly to the seed. Further posters show how Bayer CropScience offer advice, assistance and support to different stakeholders in their investment decision and in the implementation of this technology.

Introduction

Imidacloprid – the a.i. of Gaucho® is an innovative molecule from Bayer research. Main characteristics:

- Active at very low rates against sucking insects
- Root and foliar systemicity
- Very favourable (eco) toxicological profile, which permits safe handling of treated seed
- Long lasting effect, especially when applied on the seed, onto the stem or in/on the soil.

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Prerequisites for an optimal protection

The usual recommendations of progressive ginneries and institutes are applicable:

- Use delinted and sorted seeds
- Use seed with high germination rate and vigor (>80% germination)
- Each individual seed should receive the correct dose of active ingredient, e.g. 350 g a.i./100 kg seed or 0,35 mg/seed
- Sowing rate: max. 15-18 kg/ha

Gaucho® can be regarded as an integral tool in crop management and improvement!

Specific and adapted formulations

In order to meet specifications and needs of individual users, Bayer CropScience offers adapted formulations:

- Liquid (FS) or solid (WS)
- Ready mixes with thiram (Gaucho® T) and pendimethalin (Gaucho® MT)
- Ready mixes with sticker and/or neutralisation compound.

Results in Africa

Numerous trials were started in the early 90’s on small plots in research stations all over Africa and have been extended by a series of large scale and demo trials since 1995. The results and effects observed in accurate testing facilities (institutes) were convincingly confirmed under larger plot conditions (large scale trials and demo trials) and also in practice (stewardship operations).

Main results and observations

- Higher germination rate and plant stand
- Justifies a reduction in the seeding rate
• Long lasting protection
  At the full recommended rate, Gaucho® protects the seed and the young plant against soil and sucking insects for 6-8 weeks. Consequently, no aphidical sprays prior to the first bollworm spray are necessary.

  The protective action of imidacloprid results in improved efficacy and less damage to the plants, in comparison with corrective spray applications. This applies equally to virus diseases transmitted by sucking insects.

**Effect on growth and plant vigor**

  Difference in height, leaf coloration and general plant vigor compared to the control may be observed during a part of the growing period. These effects ("boosting effect") very impress growers and are a major argument for ginneries in convincing them to use selected, delinted and treated seeds.

**Effect on yields**

  Significant differences can be observed at harvest time between Gaucho® treated plots and untreated plots, as well as between Gaucho® treated plots and conventional seed treatment plots. In the Central and West African regions, for instance, yield increases averaged +200 kg/ha seed cotton in numerous (large scale) trials over several years.

  • Under severe insect infestation or disease transmission, more spectacular yield increases can be reached.
  • Preventive protection with Gaucho® leads to higher yields than curative spray applications.
  • Even control of low infestations of sucking insects can lead to yield increases. Yield increases are well correlated with the application rate.

**Profitability**

  The use of Gaucho® on cotton seeds proved to be highly profitable! Due to the fact that yield increases (e.g. +200 kg seed cotton in West Africa) can be achieved, even when the pest pressure is low or absent, the initial higher investment (up to 3x vs. standard systemic treatment) is fully recovered and proves to be much more profitable (e.g. 2.5x).

  • Cost of fungicide (thiram / pencycuron) is included
  • At least one early spray insecticide saved (min. €6/ha)
  • Net value of seed-cotton is higher for seed company than for grower
  • Reduction of seeding rate e.g. down to 10-12 kg/ha is possible (diff. > €3.50/ha)
  • No induction of cross-resistance to OP or carbamates (if resistance: €12/ha for Confidor instead of €6/ha for dimethoate x five treatments!)

**GAUCHO® concept = servicing**

  Bayer CropScience’s policy is to provide Gaucho® users not only with a high performance specialty product but also with full support before, during and after the cotton seed campaign:

  • Technical assistance before season. At Monheim, Bayer CropScience’s head quarters, the Seed treatment Business Unit has specialised facilities for theoretical and practical training of seed treatment personnel
  • Technical assistance during season
  • Field assistance during and after season

  It is Bayer CropScience’s desire to demonstrate to Gaucho® users that their choice was correct and to teach growers how to evaluate the pests and the crop situation in their fields in order to assist them in avoiding unnecessary or premature sprays. Stewardship actions, involving the ginneries’ field staff, growers and the Bayer team, are organised on a regular basis.

  Data concerning the growth of the plants, the corrective sprays, results of the sample analyses and the yields are compiled. It can be demonstrated to ginneries and farmers that the performance of Gaucho® under practical conditions reflects the results of the research activities!