

Ecological impacts of transgenic crops

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AGRICULTURE BECOMES MORE SUSTAINABLE as

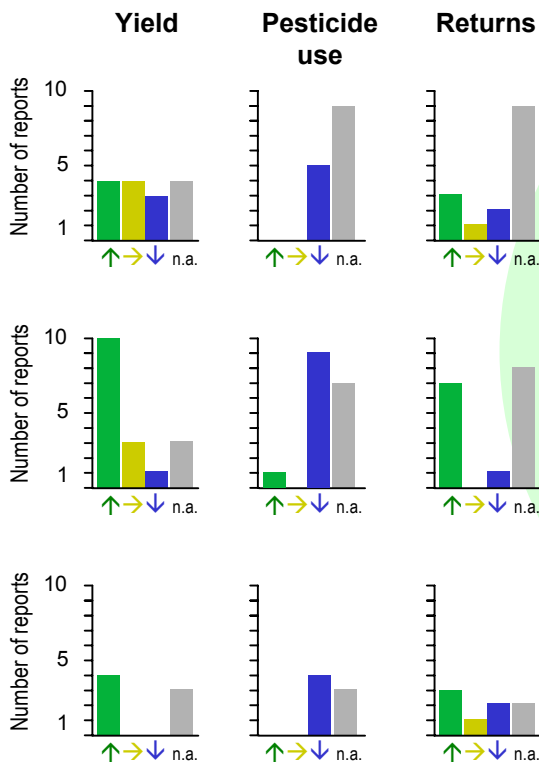
- pesticide use is reduced,
- biodiversity and non-renewable resources are saved,
- enough food is produced in a cost-efficient way.

Organic farming fulfills many of these prerequisites. However, when compared to conventional production systems, the acreages that are managed under organic farming regimes are marginal (about 2% in Western Europe, about 0.2 % in North America). For the majority of all the other farmers, crops with new, genetically engineered traits provide solutions for a more sustainable agriculture.

Thirty-seven reports on field trials and farm surveys were analyzed with regard to the following question: How did the implementation of transgenic crops, i.e., herbicide tolerant soy bean, insect-tolerant (Bt) cotton and Bt corn, affect yields, pesticide uses, and returns when compared to conventional production systems? The results for each criterion were grouped into four classes: increase (↑), decrease (↓), no change (→), not assessed (n.a.). Numbers of reports quoting a particular result are shown in Fig. 1.

For detailed data sheets and references see www.internutrition.ch

Fig. 1



Summary

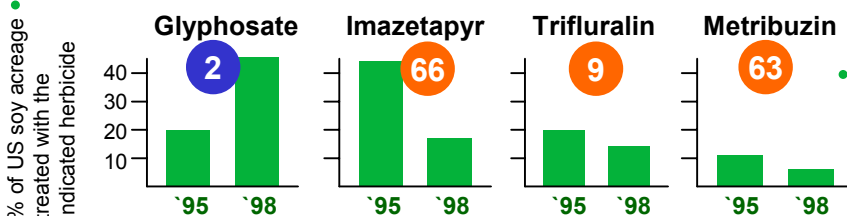
Cultivation of transgenic crops results in:

- Decreased pesticide uses in 18 out of 19 cases *
- Yield increases in 14 out of 15 BT cases *
- Trend towards increased returns in 13 out of 20 cases *
- Substitution of problematic herbicides

* where this criterion has been assessed

Many of the classical herbicides used in soy fields, e.g., Imazetapyr, Trifluralin or Metribuzin, have evoked the development of herbicide-resistant weeds. Farmers who cultivate herbicide-tolerant Roundup Ready® soybean varieties tend to substitute these herbicides by Glyphosate.

Fig. 2



In Fig. 2., the number of resistant weed species evoked by a herbicide is given within the dots close to the herbicide's name. Columns represent the percentage of US soy acreage sprayed with the corresponding herbicides in 1995 and 1998, respectively.