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From the ecological point of view we should proceed from the first phase of development of single-gene genetically-modified (GMOs) which produce bacterial proteins as pesticides to more refined ways of crop development. We should introduce some kind of "precision biotechnology", which would allow us to get away from monocultures in the old sense of the word, monocultures, which are a giant invitation to new pests and the foundation of an endlessly ongoing war against invasions of harmful organisms which will be repeated over and over again.

Precision biotechnology could mean a combination of resistance genes, each one mixed with others in a rich variety of different seeds on the same field, so that pests will have a considerably lowered chance for new attacks. This would create a situation, which comes close to nature, where we encounter hundreds of species within a square mile and thousands of different resistance genes.

If we refrain from heavy pesticide use, beneficial insects will come back, adapt to GMOs and again lower the selection pressure, since their strategies they have developed against pest insects are highly refined and vary much more than any agriculture technician could mimic.

Also it should be emphasized, that the present day transgenic crops on the market contain only a few transgenes such as the Bt and Round-up Ready-tolerance genes. An analysis of the research literature opens a much more diverse picture for the future: it will be possible to enhance natural resistance systems, functional genomics will reveal the true richness of hundreds of other resistance genes, it will soon be possible to enhance considerably drought and cold resistance in a variety of crops.

Looking back in a few years from now we will recognize, that the present day period could be named a first phase of the "palaeogenetics". We should avoid, however, of being too optimistic. It is precisely the ecologically-relevant, genetically-determined characteristics such as resistance to cold and drought that are based on interactions of genes -- and these are still insufficiently understood.

However, knowledge about the systemic relationships of such genetic properties is increasing rapidly. This elegant breeding method offers an ecological future for agriculture and there will be years to come, when even organic farmers will have a difficult time to explain, why they should refrain from transgenes. It is quite clear, that we need to work closely together with organic farming, learn from their strategies, which show a way out of the ecological crisis.

It needs a lot of careful discussion in the field of organic and integrated farming, since there are many obstacles on a difficult road of understanding and consensus among these partners, obstacles, which need to be carefully addressed, since on the road of synthesis and success there won't be any winners and losers. On the contrary, if we want to follow up the road of success, both sides have to undergo a process of emancipation which will free them from the ballast of narrowminded ideology.

A planning strategy of the second generation is needed which is not based on rigid, preconceived goals such as the "triumph of genetic engineering" or the "victory of environment-friendly farming excluding novel technologies". Rather planning should focus on the desire of all parties to find a solution: to achieve more ecologically sound farming methods for all.

This requires that all parties declare openly their own interests and respect those of others, there should be an open dialogue and no hidden agendas. The principle of the symmetry of ignorance (experts and non-experts have different types of knowledge, yet both have equal status) must be accepted. Hopes are justified, that a newly emerging "precision biotechnology" opens the doors to a considerable enhancement of yield, product quality and ecological practise in modern agriculture.