

# ROUNDUP READY MAIZE FOR INDIA: ANOTHER WRONG DECISION

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Notwithstanding the resounding failure of its Bt cotton, Monsanto has begun the process for introducing another genetically modified crop into India, its proprietary maize variety called Roundup Ready corn. The government's Review Committee on Genetic Manipulation (RCGM) has given permission for Monsanto to bring in breeding material and start its work. It would appear that the government of India has no coherent policy for GM crops. Transgenic crops are being introduced in a whimsical manner, determined more by the company owning the variety than the needs of Indian farmers.

Roundup Ready corn is a herbicide tolerant maize variety which offers no advantages to the Indian farmer with respect to yield, no protection against disease, no ability to tolerate saline soils, no drought tolerance and no improvement in the quality of the grain, to mention a few of the reasons why new varieties are introduced. Monsanto's herbicide tolerant maize is a variety, which contains genes that will allow it to tolerate the poisons contained in the herbicide Roundup, which when sprayed, will kill all the other plants, which become weeds in the field. So after spraying Roundup in the field, the Roundup Ready variety will be the only vegetation left standing, everything else will die.

Roundup is a herbicide (a chemical that is used to kill weeds) which also belongs to Monsanto which until very recently held the patent on it. This means that the farmer has to buy the package, the Roundup Ready variety and its matched herbicide, Roundup, since one is dependent on the other. Herbicide tolerance is a clever strategy developed for the company, not the farmer. It allows Monsanto to make a double killing, first on the seed and then on the herbicide. Monsanto has succeeded in promoting its herbicide tolerant crops to the extent that globally, herbicide tolerance is the single most prevalent trait in the cultivation of GM crops, the other being insect resistance, that is Bt. In 2002, of the total acreage of GM crops, over 80% was devoted to herbicide tolerant crops and the remaining to Bt crops.

Herbicide tolerance was developed as a trait in crops to address the problems of agriculture in industrial countries where landholdings run into a few thousand acres and where there practically no labor is available for farm operations. With just two to five percent of the population in farming, agriculture is largely mechanized. Weed control therefore cannot be done by hand. The preferred way of controlling weeds in these countries is by aerial spraying which is a wasteful and ecologically destructive method. The wastefulness makes it expensive, but in the OECD countries where the agriculture subsidies exceeds one billion dollars a day, cost is hardly an issue! In countries like the US and Canada, agricultural fields are large monocultural tracts with little natural vegetation around. Thus aerial spraying of herbicides would essentially fall on the plantation area and destruction of natural vegetation will not be on the same scale as what could happen in a developing country situation.

In developing countries, agricultural holdings are small and densely packed. Fields growing different crops neighbor one another and agricultural fields are set within or border natural ecosystems with natural biodiversity. So, if fields of other crops and even borders of natural vegetation or the forest edge flanked a field growing Monsanto's Roundup Ready maize, then spraying the Roundup herbicide would affect the neighboring crops and natural vegetation (which do not have Monsanto's Roundup resistant gene) and kill them. Surely this leap in GM technology cannot be considered desirable either from the point of view of farmers or the biodiversity.

Herbicide tolerance as a trait should actually not be allowed in India or other developing countries for important economic and health reasons. In these countries weeding is a source of

many benefits to the rural community. A weed is only a plant that is growing at the wrong place at that time. It is not a useless plant. Weeding provides wage labor to agricultural labor, which is usually the land-less farmers. In addition, weeding is mostly done by women, providing them with a direct, and often only, income source. Using the Roundup Ready approach will kill this source of income. So in India, rather than the chemical route of herbicide tolerant plants and the double deal for the company with the proprietary herbicide, the socio- economic interest of the community lies in manual weeding.

Even more importantly, the rural household consumes all the plants that are collected as weeds. Many of these are leafy greens like amaranth (the same plant which is contributing the protein gene for the efforts to make a protein rich GM potato), a rich source of vitamins and minerals. This highly nutritious source of food is available for free and goes into the cooking pot of poor rural families, one of the reasons why rural nutrition is far better than urban nutrition. What is not consumed by the family serves as fodder for the livestock that is maintained by the family as an additional source of income.

The last thing that rural India needs is Monsanto' herbicide tolerant maize or any other herbicide tolerant crop for that matter. If GM technology is to be used in India, it should be directed at the real needs of Indian farmers, on crops like legumes, oilseeds and fodder and traits like drought tolerance and salinity tolerance.