

Genetically-engineered cotton fails to perform in Colombia

The failure of GE (genetically-engineered) cotton in Colombia deepened already hard times for many farmers in the 2008/2009 growing season. In the field, two new varieties of GE cotton proved disastrous in Cordoba Province, Colombia's most important cotton-growing region. Farmers there have sued Monsanto, saying it misled them about the varieties, which were reportedly attacked by caterpillars and damaged by herbicides that the plants were supposed to resist.

Economically, GE seeds and accompanying herbicides contribute to high farm costs that have made more than half of Colombian cotton farms unprofitable, despite government subsidies. Overall, both the total national harvest and its profitability have declined after Colombia planted the latest GE seeds, even though acreage under cotton cultivation has recently expanded.

The president of the national cotton growers' federation, CONALGODON, says that the 2008 season "was surrounded by great expectations" for new 'stacked' GE varieties with multiple transgenes, which were sown in Colombia for the first time. But hopes proved misplaced. Cotton growers say the varieties underperformed or failed completely in the field. CONALGODON grimly concluded "The final results of the harvest, measured by yield in the field and at the gin, confirm that hopes were higher than achievements."

What went wrong?

GE cotton failure

In Cordoba province, which normally produces nearly 50% of Colombia's cotton, two new varieties of GE cotton failed. The types contained both herbicide (glyphosate) and insect resistance (Bt (*Bacillus thuringiensis*) genes). Farmers say that, contrary to company assertions, the cotton was highly susceptible to armyworms¹ and damaged by the herbicide glyphosate, both of which were not supposed to happen. CONALGODON estimates that Cordoba's farmers lost 12.8% of their total harvest as a result (Fonseca Prada 2009a).

Cotton growers in Tolima province, in central Colombia, also reported failure of a new Monsanto GE variety, noting lower fiber yields (CONALGODON 2008).

In contrast to the problems with new GE varieties, the best-performing variety in Cordoba in 2008/09 was the conventional seed Delta Opal, which out-yielded both herbicide-resistant and Bt GE seed types.

Yield of cotton varieties, Cordoba, Colombia, 2008/2009 growing season

VARIETY	TRANSGENES	YIELD/HECTARE (Observed, Cordoba Province, 2008/2009)
Delta Opal (conventional)	-	2,027kg
NuOpal	Bt gene	1,905 kg
NuOpal BG RR	Herbicide resistance Bt gene ('Bollgard')	1,883 kg
DP 164 BG2 RR FLEX	Herbicide resistance Bt gene ('Bollgard2')	1,762 kg
DP 455 BG RR	Herbicide resistance Bt gene ('Bollgard')	956 kg

(Source: Fonseca Prada 2009)

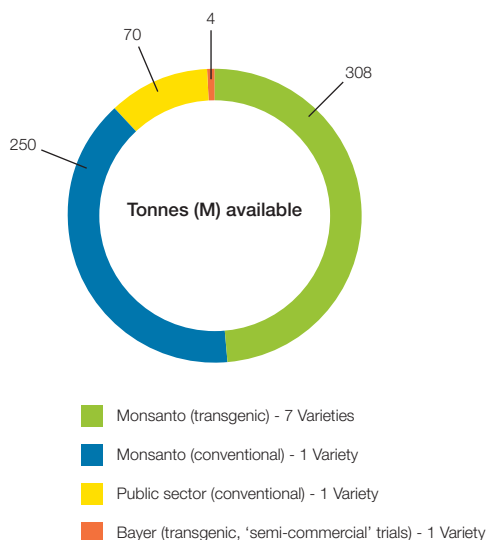
Some of the farmers whose cotton failed bought GE seed because it was the only kind available. According to CONALGODON, due to insufficient supply of conventional seed some farmers had to buy a Monsanto GE variety that cost nearly three times as much as the conventional Delta Opal.

"A catastrophe is what happened. The lack of wider portfolio of varieties means farmers don't have alternatives for planting."

Jorge Patiño, spokesman for Remolino, a cotton growers' federation in Tolima, Colombia, 2009 (CONALGODON 2008).

That some farmers had no seed choices but GE varieties is unsurprising given Monsanto's dominance of Colombia's cottonseed market. CONALGODON has criticised the offerings as an 'insufficient, inadequate, and inopportune supply'. The growers charge that Monsanto's 'narrow portfolio' lacks diversity and note "high seed prices relative to the net benefits observed." (Fonseca Prada 2008).

Limited choices: availability of certified cotton seed, Colombian Coastal Production Zone, 2009/2010 growing season (Source: CONALGODON)



Monsanto cottonseed prices and technology fees, Colombia, 2009 (Source: Monsanto, converted to US dollars at 1900 Colombian pesos= \$1, rounded to nearest dollar)

Variety	Seed cost	'Technology fee'	Cost(25kg sack)
Delta Opal(conventional)	\$179	\$0	\$179
NuOpal (Bt)	\$179	\$176	\$355
DP 455 (Bt/RR)*	\$187	\$234	\$421
DP 164 (Bt 2/RR/'flex')*	\$168	\$329	\$497

*Experienced field failure in one or more regions of Colombia in 2008/09.

An industry in crisis

Colombian cotton is subsidised by a government minimum price guarantee. In recent years, the subsidy amount has fluctuated near \$0.09 US dollars per kilogram (ICAC 2006), nearly 1/3 of cotton's international price of \$0.281 per kilogram as of late August 2009.

Despite the subsidies, rising production costs have made more than half of Colombian cotton farms unprofitable (CONALGODON 2008). In 2008/2009, average production costs surged from 13%-30%, depending on the province. Genetically-engineered crops are a significant contributor to rising costs. In some areas, the price of Monsanto's glyphosate (Roundup) has recently doubled (Mejia 2009), and GE seed prices are two to three times higher than those of conventional seed (see chart).

In the major cotton growing regions of Cordoba and Bolivar, GE seed is driving planting costs upwards, while herbicide and pesticide costs have also increased or failed to fall sufficiently to compensate for increased seed expenses (Fonseca Prada 2009b, 2009c).

GE cotton is thus clearly not steering Colombian farmers away from failure and, in response to the sector's deepening problems, the Colombian government has increased subsidies for 2010 (CONALGODON 2009).

Monsanto sued

As a result of the failure of Monsanto GE varieties in Cordoba and problems elsewhere, the Colombian government has imposed a new regulation on Monsanto (Resolution 682/09, February 2009) requiring it to provide more extension assistance to farmers.

Cordoba farmers have sued Monsanto seeking damages for their loss. Tacitly acknowledging the failure, Monsanto officials first offered cash compensation. But talks broke down in mid-2009 when farmers refused to sign legal releases upon which Monsanto conditioned payments (Arroyo Muñoz 2009). The case now appears to be headed to court.

Sources

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