

Food Aid in Somalia – Challenges Ahead

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ABSTRACT

What is the response of agronomist consultants who are visiting a remote African village and are told the food-aid maize the children in the village receive as part of a school-lunch program is causing the children to become ill? This poster describes the process the agronomists went through to help answer why the children were getting sick. The 2011-12 famine in parts of southern Somalia resulted in a large number of newly internally displaced people (IDPs) and a huge influx of food aid. The famine subsided, but the number of IDPs and the amount of food aid coming into Mogadishu, the capital of Somalia, has not. A substantial amount of the food aid makes it into local markets, depressing the demand for the white maize produced by local farmers. Yellow-colored maize, provided as food aid, is commonly sold for animal feed to support an emergent milk and poultry industry on the outskirts of Mogadishu. Food aid to Somalia has become feed aid. The value farmers in the United States receive for their maize crop is greater than the value of the food-aid maize sold in the markets in Mogadishu. Implications of this convoluted situation are as complex as the situation itself.

Food-Aid Maize Grain Quality

Bag of food-aid maize at Gabiley

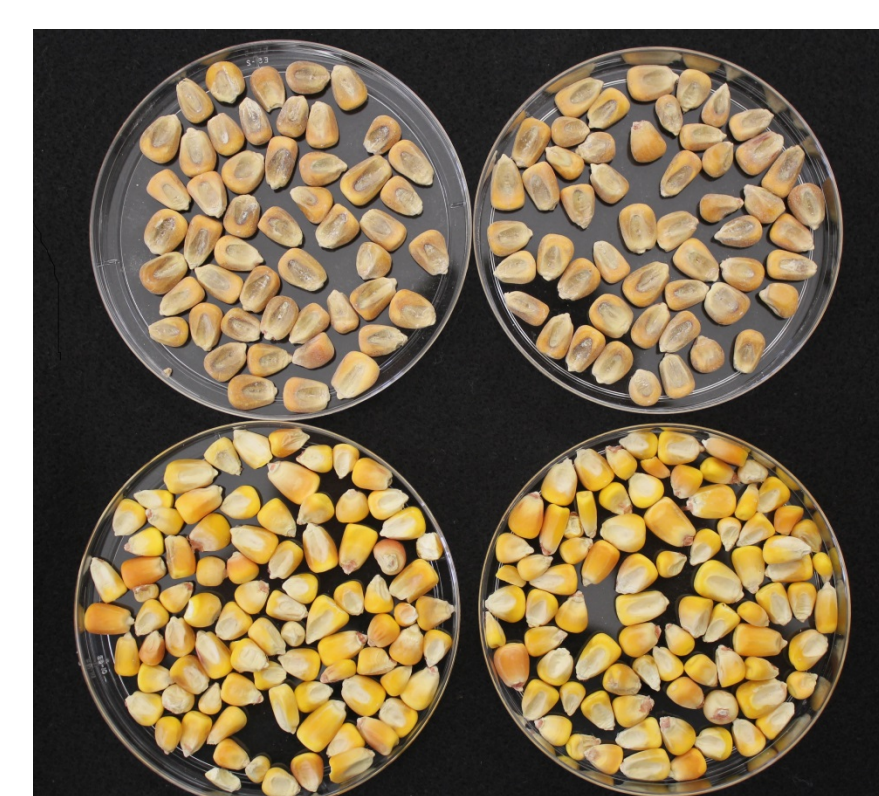


Close-up of food-aid maize at Gabiley

January 2013 – Gabiley area in Somaliland

Villagers complained that at times the World Food Program (WFP) yellow maize received for schoolchildren was unfit for children and livestock, and consuming it caused sickness.

Food-aid maize



Food-aid maize

U.S.-grown maize

Testing of this Gabiley maize found no living fungi in the kernels but confirmed high levels of the mycotoxin Zearalenone (ZEA). ZEA is often produced by *Fusarium*, which typically infects maize plants grown under drought stress conditions. The concentration of ZEA found in the food-aid maize was 2.6 mg kg⁻¹. Depending on the amount of maize consumed, an adult or child could easily exceed the provisional maximum tolerable daily intake of ZEA at this level of contamination.

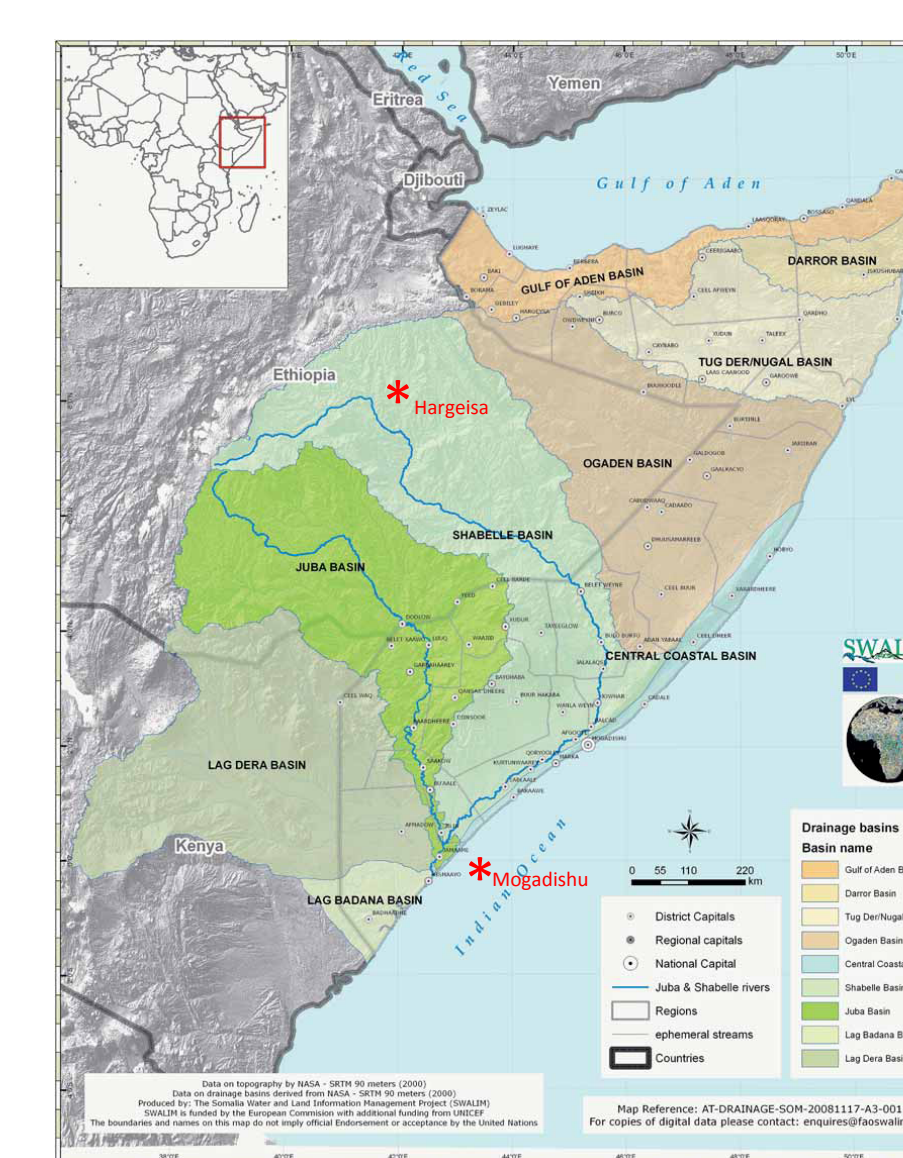
Follow-up mycotoxin testing

Fifty-two additional maize samples, collected from throughout Somalia in May and July 2013, were analyzed for the mycotoxins ZEA, deoxynivalenol (DON or vomitoxin), and three of its derivatives (3-acetyl-deoxynivalenol, 15-acetyl-deoxynivalenol, and nivalenol). Thirty-six of the samples were food-aid maize and 12 were Somali-grown maize.

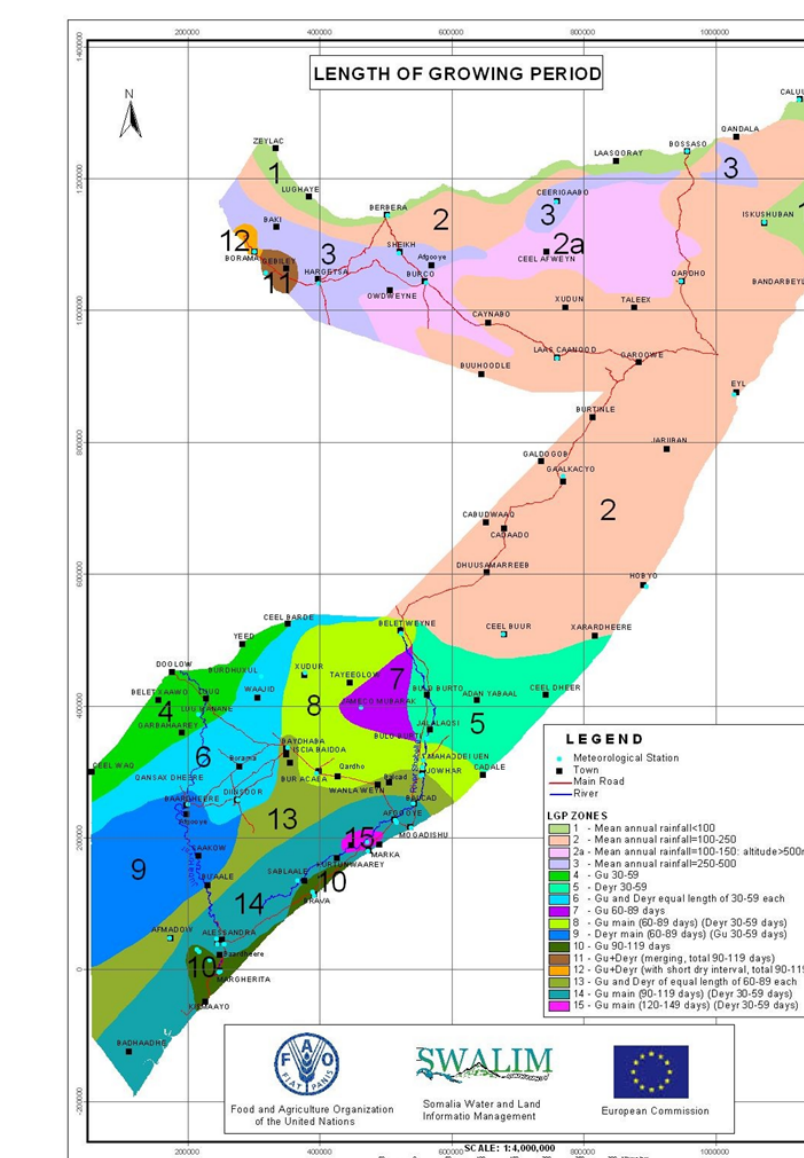
The following fungi were found on some of the samples: *Aspergillus flavus*, *A. fumigatus*, *A. niger*, *A. terreus*, *Penicillium spp.*, and *Fusarium spp.* None of these samples contained high levels of ZEA, DON or the derivatives. We have no explanation why the Gabiley sample contained a high level of ZEA. Further testing of these samples for fumonisins and aflatoxins was not completed as of early November 2013.

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Horn of Africa



Somalia



Civil strife and periodic droughts resulted in an abundance of food aid entering Somalia. Some of that is yellow maize, which is not typically consumed in the Somali diet. That food-aid maize can be purchased in the market in Mogadishu at a price below the price a U.S. farmer receives. A burgeoning camel dairy industry is developing on the outskirts of Mogadishu, which is dependent on feeding the yellow food-aid maize.

Food-Aid Maize as Feed

Bags of food-aid maize at dairy farm



Camels eating food-aid maize at dairy farm

August 2013 – Outskirts of Mogadishu

Dairy farmer storage shed and an adjacent camel dairy confinement compound outside of Mogadishu. The shed contained approximately fifty 50-kg WFP bags of yellow maize intended as food aid.

Maize price comparisons¹

U.S. yellow maize	U.S. yellow maize	Somali white maize (farm)	Somali white maize (market)	Food-aid yellow maize (market)
US\$ bu ⁻¹	US\$ bu ⁻¹	US\$ kg ⁻¹		US\$ kg ⁻¹
4.85	0.19	0.24	0.28	0.17

¹ Prices as of 23 August, 2013 at the farm in southwest Minnesota and Afgoi Somalia, and at the Mogadishu market.

Comparison of land planted, productivity and production between typical U.S. farmer and typical Somali farmer

	Units	U.S. farmer	Somali farmer	U.S.:Somali ratio
Land planted	ha	~500	~1	500 x
Productivity (yield)	kg ha ⁻¹	10,000	1,000	10 x
Production	kg	5,000,000	1,000	5,000 x

Challenges

- Food-aid yellow maize in Somalia is often perceived as low quality food.
- It is not preferred, and seldom consumed, in the Somali diet.
- It is purchased in the Somali marketplace at a price below what a U.S. farmer receives.
- It is being used as a feed source for camel-dairy operations near Mogadishu.
- It stifles maize and sorghum production in Somalia.