

Greenseeder Hand Planter

Increased Yields and Improved Safety for Developing World Producers



Conventional maize planting in El Salvador

Almost the same amount of maize (corn) mechanically produced in the USA is planted, managed, and harvested by hand in the developing world. This is 29,400,000 ha (72,618,000 ac) of maize produced on marginal landscapes like the one in El Salvador (left). Central America has 3,000,000 ha (7,400,000 ac) of hand planted maize. Planting is accomplished using heavy sticks whereby 2-3 seeds are planted per strike, roughly 35cm (14in) apart. This method of planting is common for subsistence maize farmers, largely dictated by terrain, and circumstance.

When single seeds are placed 14-17cm apart (6 to 7 in), much like conventional planters, production levels can increase 25%. Because developing world maize yields hover near 2 Mg/ha (30 bushels/ac), a 25% yield increase (+0.5 Mg/ha) on 60% of the hand planted maize area in the developing world is worth more than 3 billion USD per year.

The Greenseeder hand planter is similar in shape, size, and weight (1.4 kg or 3 lb) to planters currently used, but that can reliably singulate seed. The woman in Uganda (right) really liked the new planter but wanted improvements in the tip.



Greenseeder planter used near Lira, Uganda for maize



Commercial production initiated for Greenseeder planters

Benefits

- Remove chemically treated seeds from the hands of producers
- Decreased soil erosion from improved plant spacing
- Accommodate mid-season applications of urea-N fertilizer
- Place urea below the surface reducing NH₃ losses
- Planter technology for all kinds of planted crops/seeds
- Significant increases in developing world maize production

World Values (2014)

World maize ha's, 184,000,000 (454,000,000 ac)
Developing world maize ha's, 49,356,000 (121,909,000 ac)

Developing world maize planted by hand (60% of total) 29,400,000 ha's (72,618,000 ac)

25% increase on world hand planted maize (avg 2 Mg/ha * 0.25 = 0.5 Mg/ha)

$29,400,000 * (2000\text{kg/ha} * 0.25\%) * \$0.23/\text{kg}$ (or $\$6.00/\text{bu}$) = $\$3,381,000,000$

Pictures are from maize planting in El Salvador using metal tipped persimmon sticks, planting in Uganda using the new Greenseeder planter, and assembled prototype hand planters

"OSU Hand Planter"
Google

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