

Greenseeder Hand Planter

Increasing Yield and Protecting the Environment



Conventional maize planting in El Salvador

The equivalent amount of maize mechanically produced in the USA is planted, managed, and harvested by hand in the developing world. This amounts to almost 36,000,000 hectares of maize produced on marginal landscapes like the one on the left in El Salvador. Planting methods vary but they generally use heavy sticks whereby 2-3 seeds are planted per strike, roughly 35cm apart. This inefficient method of planting is commonplace for subsistence maize farmers, largely dictated by terrain, circumstance, and resources.

When single seeds are placed 14-17cm apart, much like conventional planters, production levels can increase 25%. Because developing world maize yields hover near 2 Mg/ha (Dowswell et al., 1996), 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.



Commercial production initiated for Greenseeder planters

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



Greenseeder planter used near Lira, Uganda for maize

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 (2012)

World maize ha's, 176,000,000,000

Developing world maize ha's, 48,370,000

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

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

29,000,000 * (2000kg/ha * 0.25%) * \$0.23/kg (or \$6.00/bu) = \$3,335,000,000

Pictures are from maize planting in El Salvador using metal tipped persimmon sticks, planting in Uganda using the new Greenseeder planter, and assembled 2014 prototype hand planters

"OSU Hand Planter"



Dowswell, C.R., et al. 1996. CIMMYT mega-environment database, Maize in the Third World, Boulder, Colorado, Westview Press.

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