

Third World Hand Planter

Increasing Yield and Protecting the Environment



Corn grown in the third world is planted by hand. Their methods vary but they generally use heavy sticks whereby 2-4 seeds are planted per hill, roughly 35 cm apart. This inefficient method of planting is commonplace for third world corn farmers, largely dictated by terrain, circumstance, and resources.

If single seeds could be placed 14-17 cm apart, much like conventional planters, production levels could increase 25%. Despite the fact that third world corn yields are less than 2.0 Mg/ha (**Dowswell et al., 1996**), this 25% yield increase (+0.5 Mg/ha) on 60% of the hand planted maize area in the third world would be worth more than 2 billion USD/year.

We have developed a hand planter very similar in shape, size, and weight to planters currently used, but that can reliably singulate seeds, in various soil textures, moisture, and tillage systems.



Benefits:

Remove chemically treated seeds from the hands of small farmers

- Decreased soil erosion from improved plant spacing
- Accommodate mid-season applications of urea-N fertilizer
- Place urea below the surface reducing NH₃ losses
- Adoptable technology for virtually all 3rd world corn producers
- Potential to provide significant increases in third-world corn production.

World Values (2012)

World corn ha's, 176,000,000

Developing world corn ha's, 48,371,000

Developing world corn acres planted by hand (60% of total) 29,022,000 ha*

25% increase on world hand planted corn (\$0.23/kg or \$6.00/bu)

$29,022,000 * (2000\text{kg/ha} * 0.25\%) * 0.23\$/\text{kg} * 0.6\%$ of the land = \$2,002,518,000



Both pictures are from corn planting in El Salvador using metal tipped persimmon sticks.

http://nue.okstate.edu/Hand_Planter.htm

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

Bill Raun, Randy Taylor, Adrian Koller, Eric Lam, Max Metcalf, Peter Omara, Sulochana Dhital, Ethan Wyatt, Jeremiah Mullock, Natasha Macnack, Jake Bushong, Eric Miller, Rajen Bajgain