PARC Develops Fertilizer Band Placement Drill

Fertilizer Band Placement Drill

Fertilizer Band Placement Drill with instruction manual

Drill in Operation

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Challenges

- Broadcasting is a wasteful method of fertilizer application as only 15-25% of the applied phosphate is utilized by wheat crop due to increased contact with calcareous soil resulting in its precipitation in the form of tri-calcium phosphates.
- The conventional seed-cum-fertilizer drills used in Pakistan place fertilizer either too far from the seed or in direct contact with it.
- Hence, fertilizer use efficiency is hampered and in the later situation, relatively high rate of ammoniated phosphate fertilizer (DAP) negatively affects the seed germination and crop yield.
- Challenge was to develop a fertilizer band placement drill for placing the fertilizer in narrow bands for:
  - minimizing its contact with soil particles.
  - keeping it in direct/easy approach of plant roots

Interventions

- In 2002, PARC developed a fertilizer band placement drill.
- The drill was tested for three consecutive years during 2003-2006. It places fertilizer 5cm away and 5cm deeper than the seed.
- In 2004, PARC signed agreements with two local manufacturers for its commercial production.

Outcomes

- Field experiments have confirmed that this drill saves 50% phosphate fertilizer compared with broadcast method.
- The wheat crop roots utilize fertilizer very effectively e.g. 60-70% of applied phosphate.
- It also helps increase the grain yield by 10% over the broadcast method.
- It benefits the farmers a net saving of Rs.4,300 per acre over broadcast method.
- Currently, >8,000 units are in operation and have benefitted the country worth Rs. 6.8 billion annually.

Way forward

- Up-scaling of production of the machine in Khyber Pakhtunkhwa, Sindh and Baluchistan provinces.
- Training the tractor operators and farmers for its operation and calibration
- Creating awareness for the increased use of machine