

MECHANIZATION

for smallholder farmers

What we do

With our extensive network of public and private sector partners, CIMMYT:

- Identifies, develops, tests and improves implements such as zero till planters and axial flow pumps powered by tractors of various sizes.
- Shares designs for replication anywhere in the world.
- Offers support throughout the supply chain, from importers to manufacturers, service providers, technicians and farm advisors.



Mechanization is a welcome alternative to farmers' back-breaking physical work ... it actually saves money and increases productivity.

Scott Justice, CIMMYT rural mechanization specialist



What can scale-appropriate mechanization do?

- Increase labor productivity and reduce the drudgery that affects women disproportionately and makes farming less attractive to youth.
- Enable smallholders to adopt sustainable intensification practices – such as conservation agriculture – which require greater farm power and precision.
- Allow timely planting and harvests when labor is scarce.
- Complement farm labor, which is growing scarce due to urbanization, the increase in off-farm jobs and aging rural populations.

Gender and mechanization

Women supply most of the labor in the farming systems in which CIMMYT works, often alongside household duties. As more men migrate to cities or abroad to work, farm households are increasingly headed by women. In order to achieve greater and more equitable impact, our approach to mechanization includes:

- Adapting machinery to women’s needs.
- Co-development with women farmers.
- Ensuring that women can access affordable mechanization services.
- Taking into account household and community decision-making processes.

Where we work

Our network of partners and research platforms allows CIMMYT to facilitate the exchange of technologies and knowledge across regions.



Mexico

Ranges from high-tech industrial farming in the north to manual tool subsistence in the south.

More info: Sustainable Modernization of Traditional Agriculture (MasAgro)



Sub-Saharan Africa

Low tractor service coverage, stagnant or declining human, animal or mechanical farm power.

More info: Farm Mechanization and Conservation Agriculture for Sustainable Intensification (FACASI)



South Asia

High levels of mechanization and growing labor scarcity and cost.

More info: Sustainable and resilient farming systems intensification in the eastern Gangetic Plains (SRFSI). Cereal Systems Initiative for South Asia (CSISA)



A simple seeder pulled by cattle in Africa.



The two-wheeled tractor

Relatively cheap and easy to operate, the two-wheeled tractor can be used for many different applications

We develop solutions for locally-available machinery, or work with importers to make them available.

- ✓ Attachments can be used to speed up crop establishment with smaller tractors while improving soils through reduced tillage and precision fertilizer application.
- ✓ Axial flow pumps can tap surface water resources for irrigation.
- ✓ Threshing and shelling tools add value to crops while helping farmers to reach the market on time.
- ✓ Can be used by farmers to start rural commercial and household transport services.



A hand tractor used in Asia and Africa.

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