

MasAgro's participative research network across Mexico: Adapting conservation agriculture to local conditions

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Challenges for agriculture in Mexico

- High production costs, Low yields, Low profit
- Environmental degradation
 - Water and wind erosion
 - Loss of OM
 - Water pollution
 - Aquifer depletion
 - Burning of residues
 - Deforestation



Conservation agriculture: part of the solution

- Production System based on three principles
 - Minimum tillage
 - Soil cover with residue or crop
 - Crop diversification



Investigador

Research Platform

Técnico

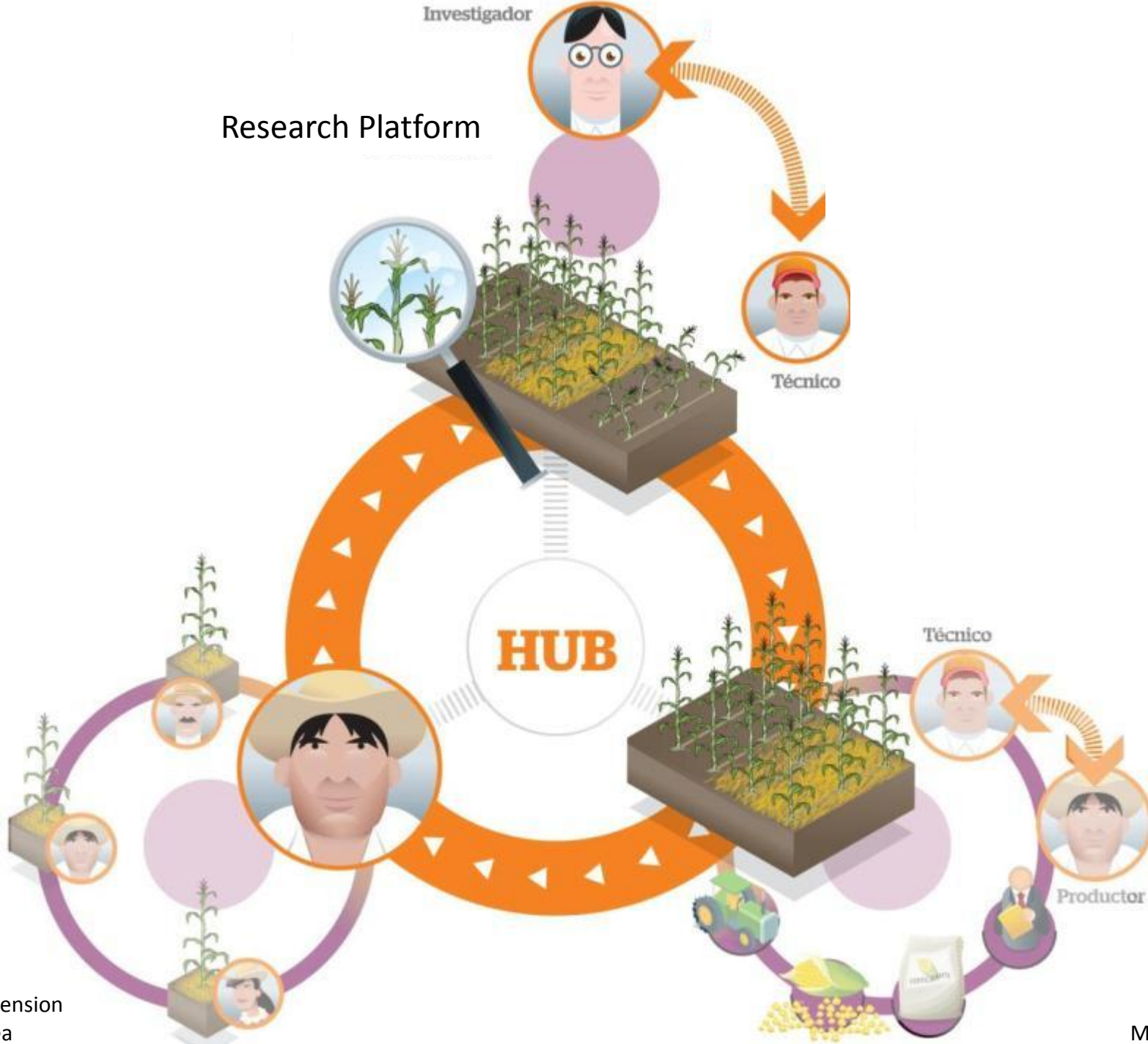
HUB

Técnico

Productor

Modulo

Extension
area





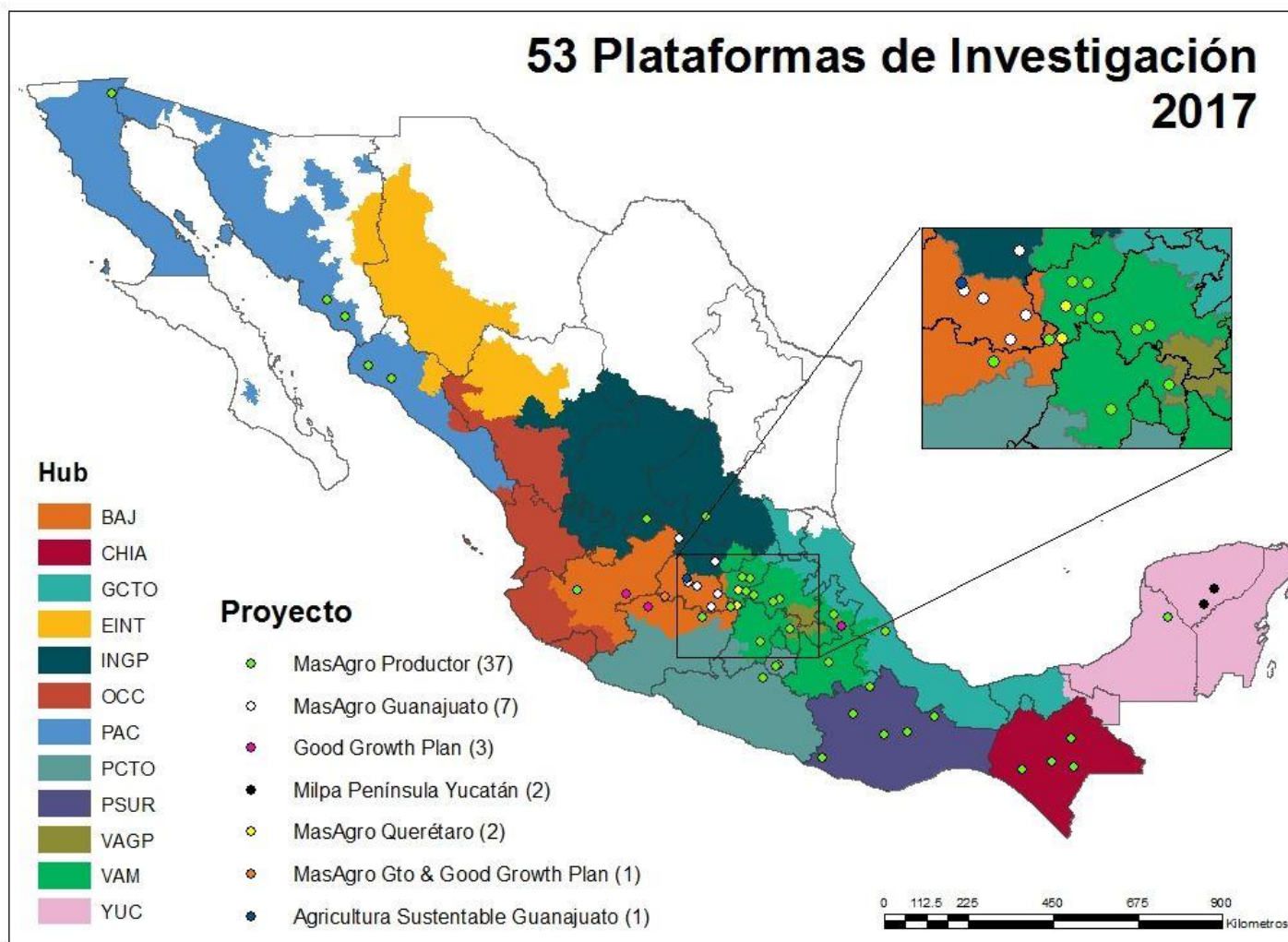
Platforms and modules

Platform	Module
Focus on research and technology development	Focus on applying technologies
Several treatments, optimizing the system trying out new things	Comparing the “best” treatments from the platforms with the farmers system
Find solutions for problems from the modulos	Identify problems to solve in platforms
Try out higher risk options	Try options with lower risk for farmer
Extension Area	Impact Area
Farmer implements technology with help of extension agent, and spreads the word	Field were a farmer adopted a new technology

<http://gismaps.cimmyt.org/>



A nationwide network of investigation



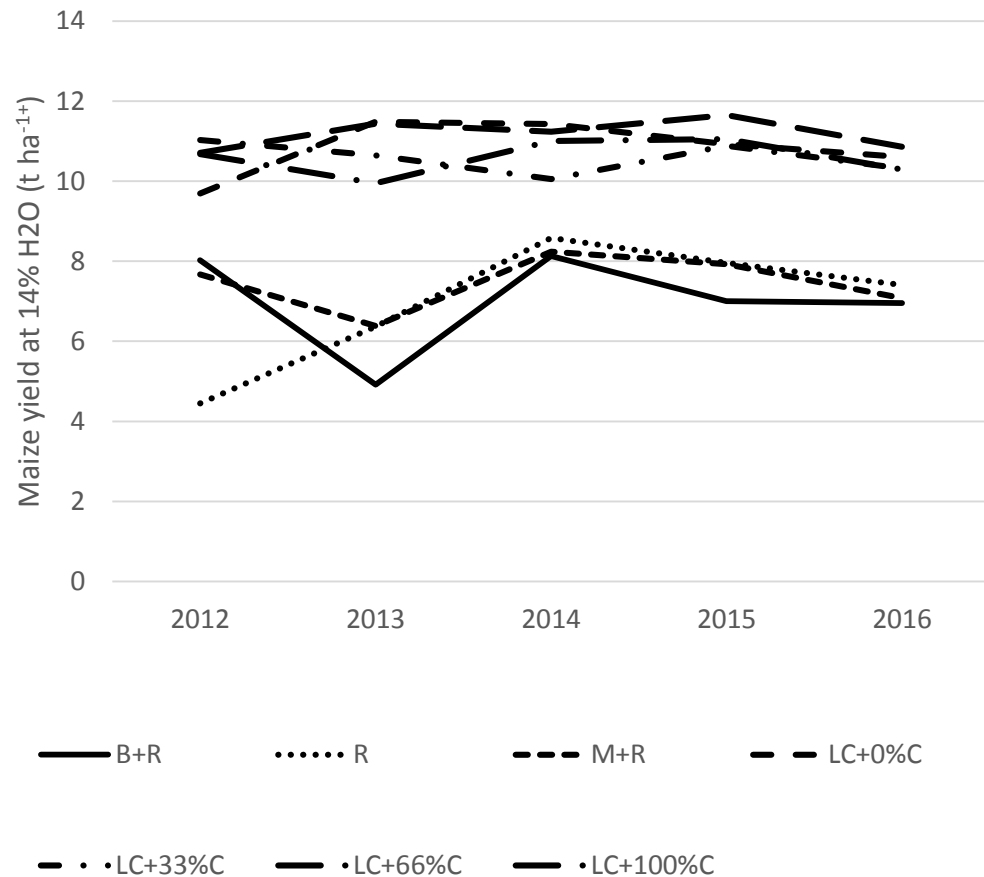
Overview of the research

Platform	State	System	Begin
Molcaxac	Puebla	Rain fed mechanized	2011
Navojoa	Sonora	Irrigated mechanized	2011
Soledad de Graciano Sanchez	San Luis Potosi	Irrigated mechanized	1995
Zacatepec	Morelos	Rain fed manual	2012
Santo Domingo Yanhuitlan	Oaxaca	Rain fed mechanized	2012



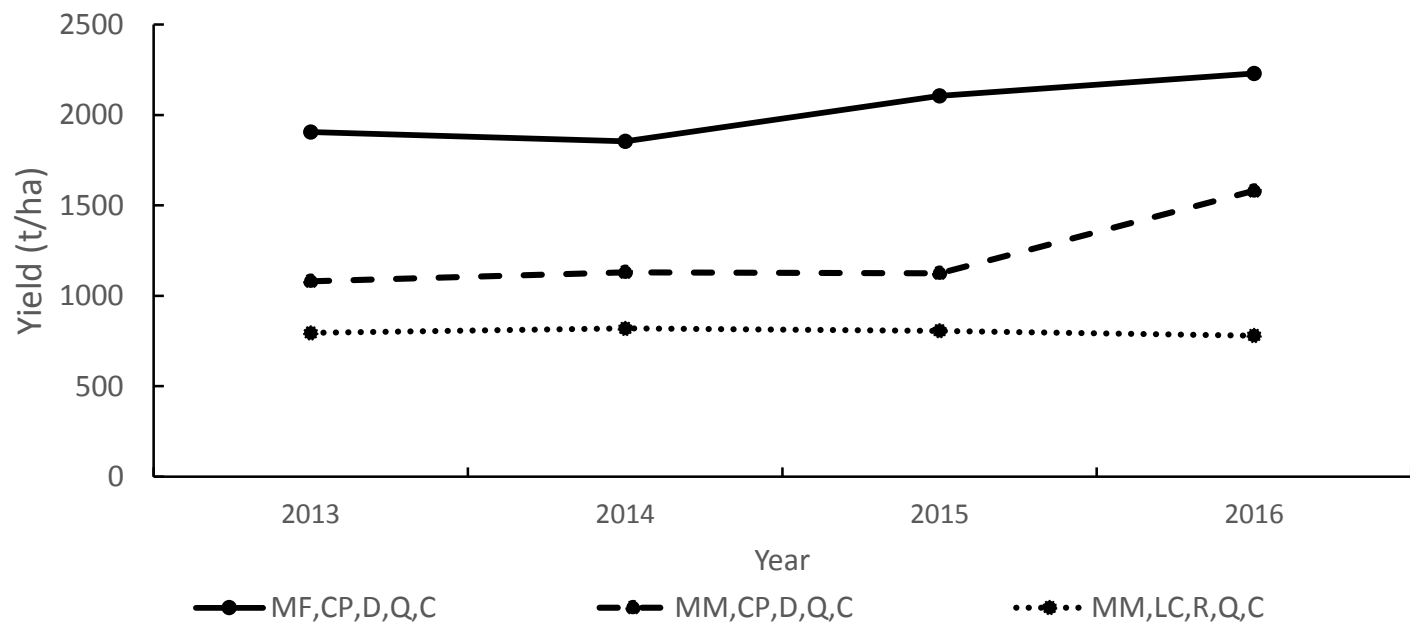
Tillage and residue: Soledad, San Luis Potosi

No.	Tillage	Residue
B+R	Plow + disc harrow	Remove
R	Disc harrow	Remove
M+R	Multiplow + disc harrow	Remove
LC+0%C	Zero tillage	Remove
LC+33%C	Zero tillage	33% cover
LC+66%C	Zero tillage	66% cover
LC+100%C	Zero tillage	100% cover

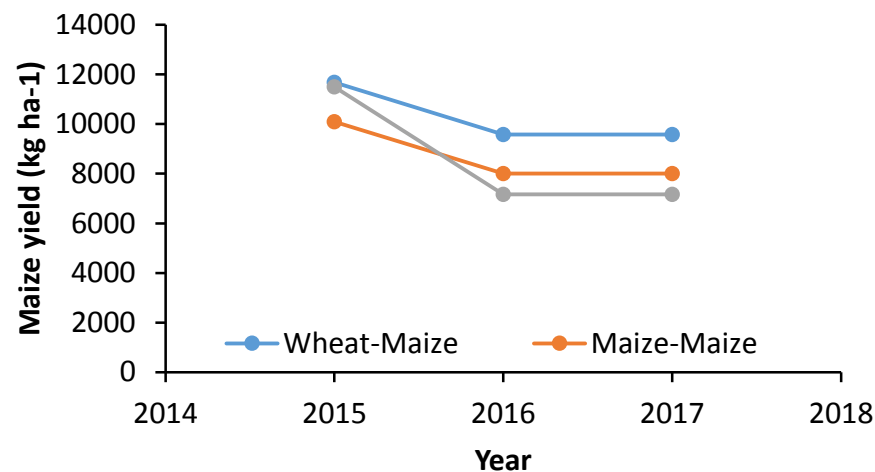
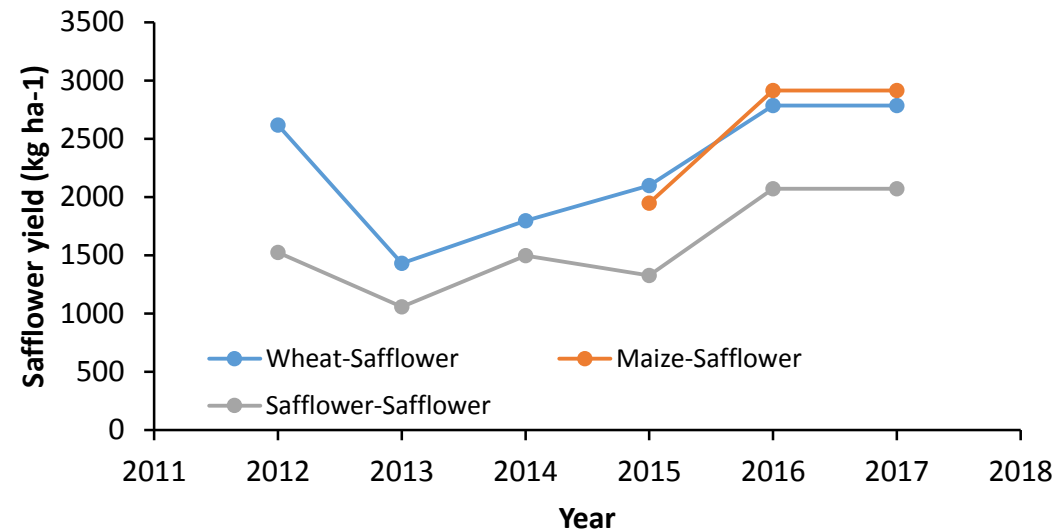
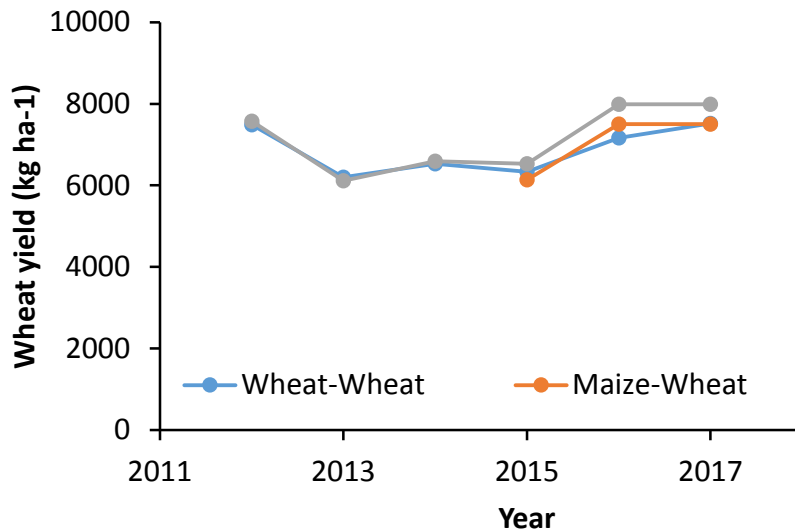


Effects of rotation: Molcaxac, Puebla

Trt	Rotation	Tillage	Residue
MM, LC, R	Maize-Maize	Plough + Harrow	Remove
MM, CP, D	Maize-Maize	Permanent beds	Keep
MF, CP, D	Maize-Bean	Permanent beds	Keep

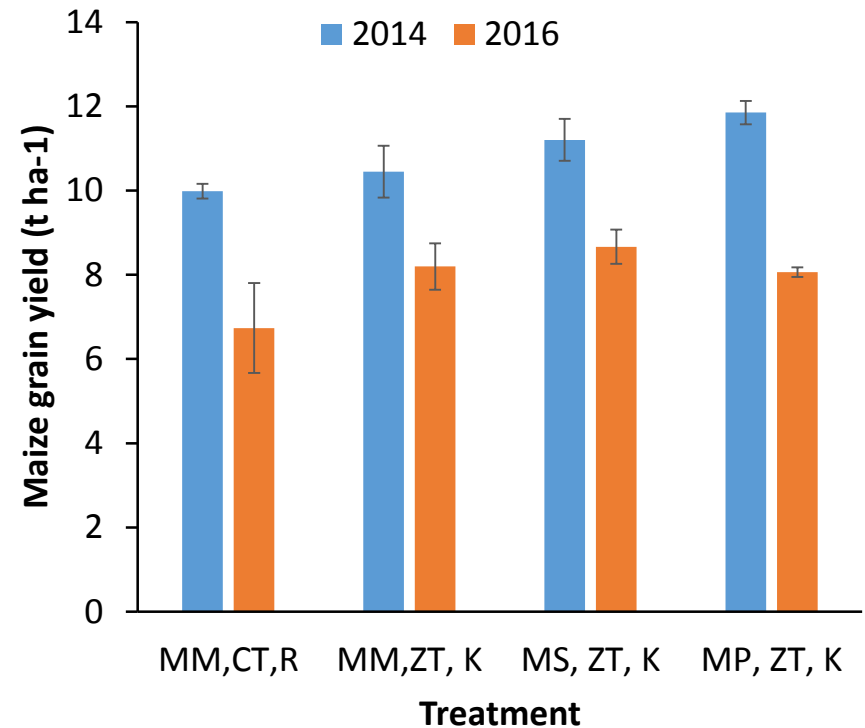


Effects of rotation: Navojoa, Sonora

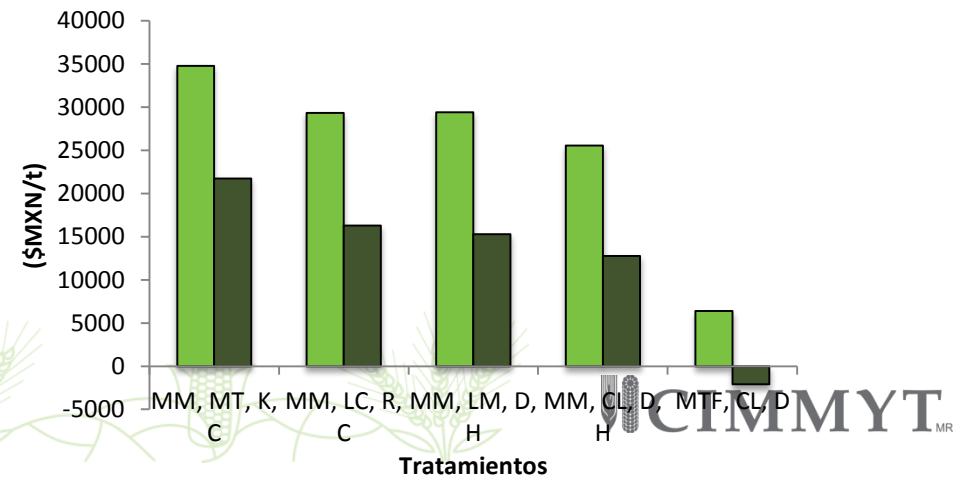
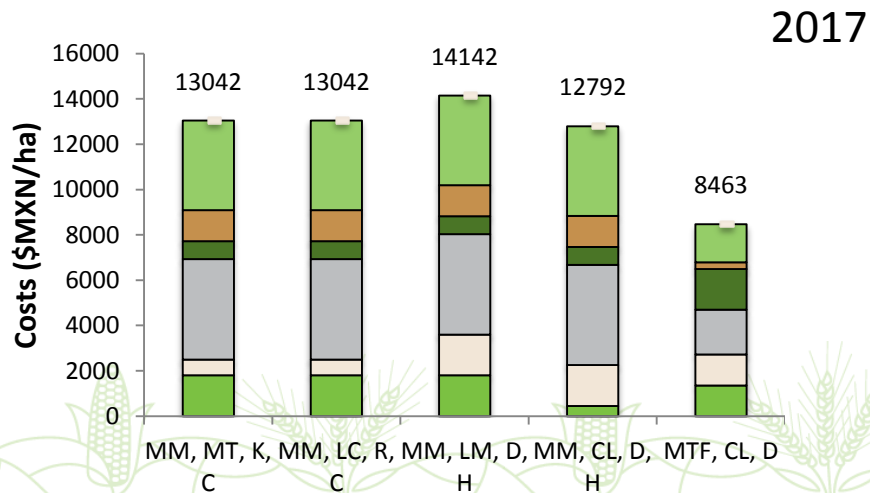
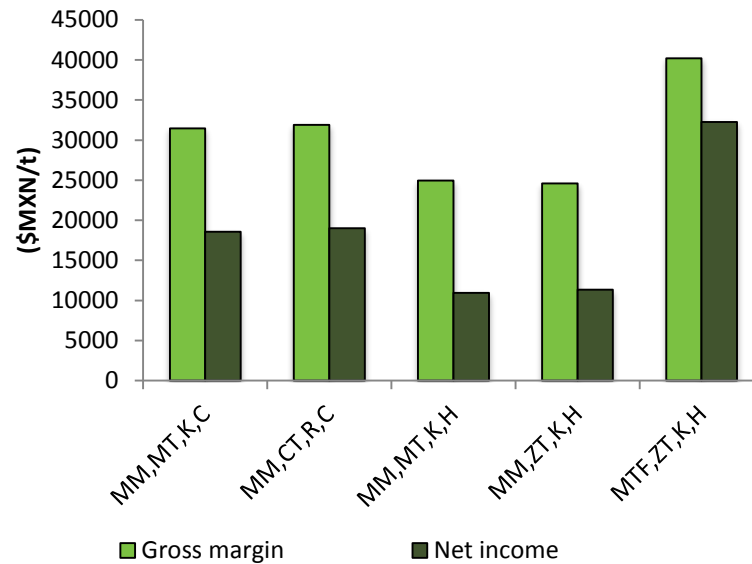
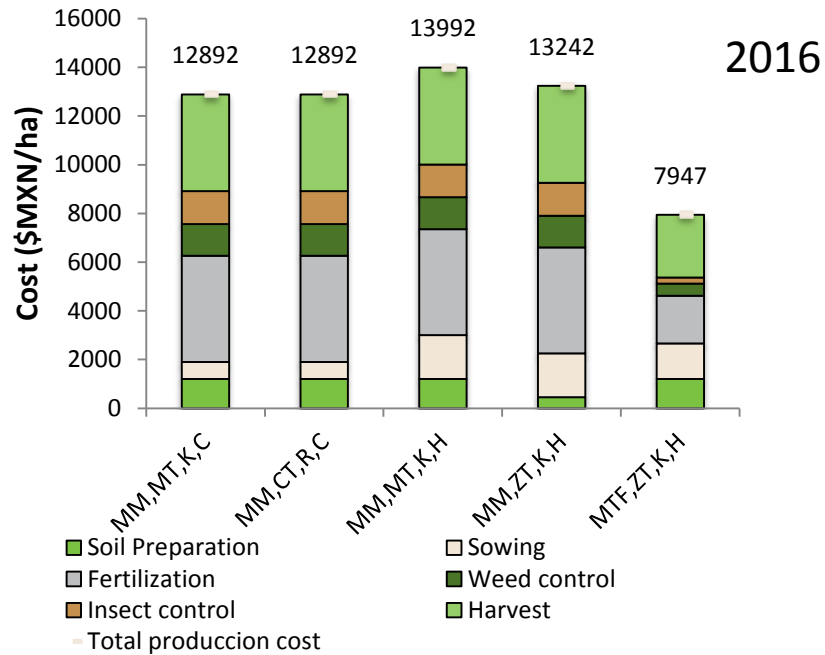


Tillage+Rotation+Residue: Zacatepec, Morelos

Treatment	Tillage	Rotation	Residue
MM, CT, R	Disc harrow	Maize-maize	Remove
MM, ZT, K	Zero tillage	Maize-Maize	Keep
MS, ZT, K	Zero tillage	Maize-Sorghum	Keep
MP, ZT, K	Zero tillage	Maize-Peanut	Keep



Adapting traditional systems: Santo Domingo Yanhuitlan, Oaxaca



Plans for the future

- Evaluate long term effects
 - Soil health
 - Weed dynamics
 - Water use
- Introduce forage crops and relay crops
- Perform meta-analyses
- Implement platforms in other projects, regions and countries



Nationwide impact of MasAgro

Higher yields

- **+94%** higher maize yields compared to regional average
- **+20%** in general, **+30%** in rainfed agriculture (in modules)

Higher Incomes

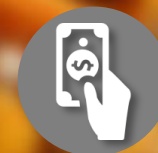
- **+16%** higher income for participating farmers in maize
- **+3%** higher in wheat and barley



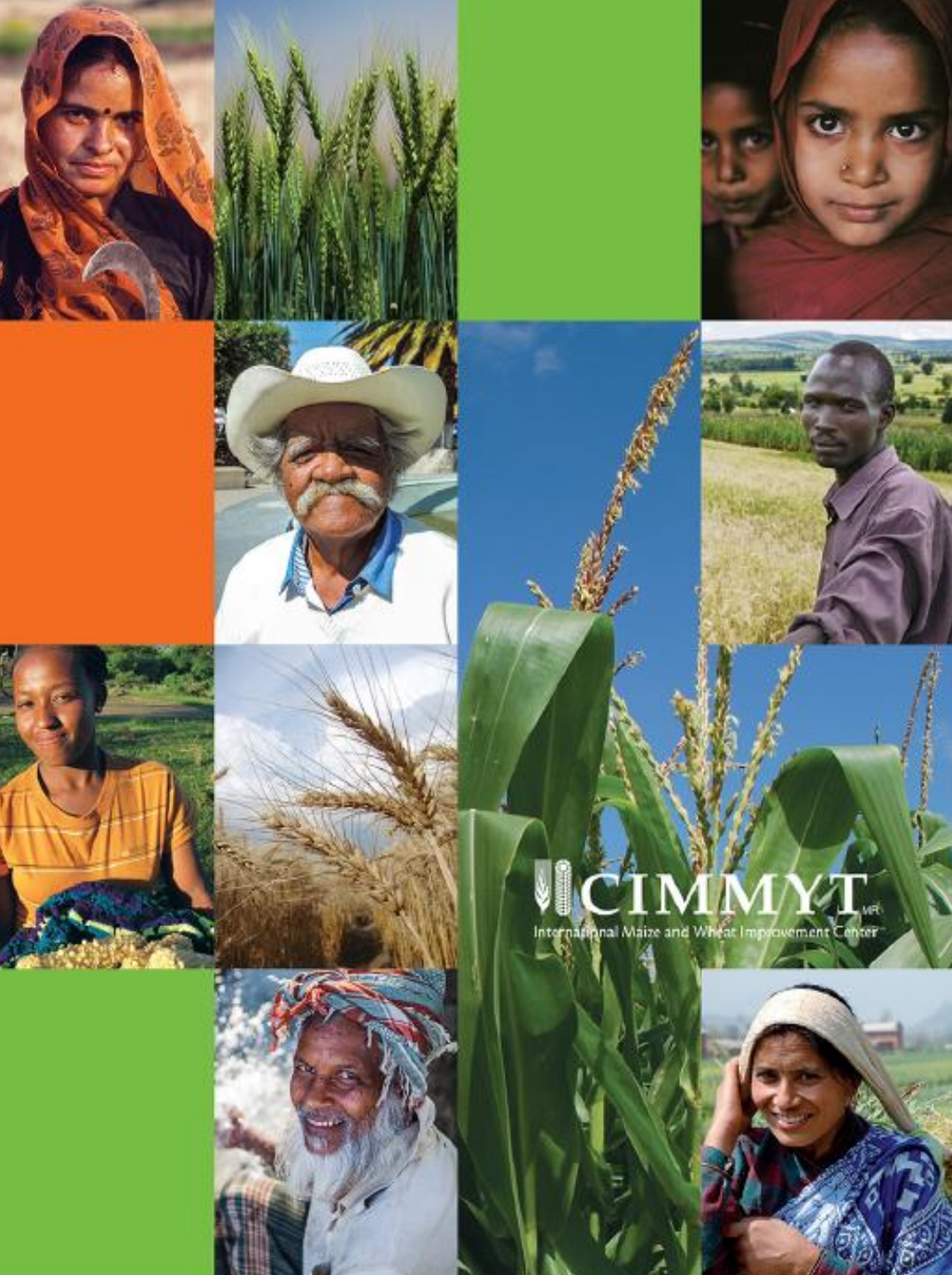
1 200 000
hectare
adopted
technologies



300 000
Farmers
participating



For every \$1
invested,
the farmer gains
\$7



Thank you
for your
interest!

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