The future of farming

Successful experiences and learnings from Conservation Agriculture worldwide

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On behalf of the Global CA Community of Practice (CA-CoP)

The Road to the 8WCCA Webinar series
Congress Sub-theme 1
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1. Successful experiences with CA
   • Global spread
   • Country cases

2. Learnings from CA spread
   • Conditions for adoption and mainstreaming
   • Global crises as drivers of CA adoption & spread

3. Greater Learnings: From the global burden of chronic challenges
Successful global spread

(Third Volume: global adoption & spread)
Worldwide History and Adoption of CA (2015/16). Since 2008/09 increasing at 10.5 M ha annually, 50% in the North, 50% in the South.

### Historical Events
- **1930**: Dustbowl
- **1970**: First no-till demonstration in Brazil
- **1980**: First no-till farmers in USA
- **1990**: IITA no-till research
- **2000**: First WCCA in Madrid
- **2015**: New boost: Canada, Australia, Kazakhstan, China, India, Pakistan, Russia, Ukraine, Europe...

### Adoption Rates
- **Global total**: 180.4 M ha (69.4%)
- **South America**: 69.9 M ha (41.0%)
- **North America**: 63.2 M ha (57.9%)
- **Australia & NZ**: 22.7 M ha (86.1%)
- **Asia**: 13.9 M ha (430%)
- **Russia & Ukraine**: 5.7 M ha (5000%)
- **Europe**: 3.6 M ha (127%)
- **Africa**: 1.5 M ha (211%)

### Adoption Rates by Region
- **South America**: 69.9 M ha (41.0%)
- **North America**: 63.2 M ha (57.9%)
- **Australia & NZ**: 22.7 M ha (86.1%)
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### Key Points
- ~78% of CA area – large & medium holders ~ 141 M ha
- ~22% of CA area – smallholders ~ 39 M ha

### Trend Lines
- **2008/09**: ~100 Mha
- **2015/16**: 180 M ha
- **2018/19**: >200 Mha

### Regions
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### Global Total
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- ~78% of CA area
- ~22% of CA area

### Key Events
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###Region-wise Adoption
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### World Total
- **Global total**: 180.4 M ha (69.4%)
Successful experiences worldwide: Country cases

(Third Volume: global adoption & spread)

North America, Latin America, Australia, Europe & Euro-Asia

Canada, Brazil & Paraguay, Australia, UK & Spain, Kazakhstan & Uzbekistan

West Asia, South & South-East Asia, East Asia, Africa

Iran & Syria, India, China, South Africa, Ghana & Morocco
Successful experiences worldwide: Country cases

North America, Latin America, Australia, Europe & Euro-Asia

**Canada** - ~>50%, 21.7 Mha, western landscape transformed, no dust storms since 2000; a range of co-benefits – greater productivity & profit, reduced inputs, lower GHG emissions; C seq scheme in Alberta, before Kyoto; in mainstreaming phase

**Brazil & Paraguay** - ~>52%, 42.2 Mha; ~>63%, 3.0 Mha, small & larger-scale farmers institutionally integrated; 1\textsuperscript{st} & 3\textsuperscript{rd} global exporters of soya; output doubled, inputs down 30-50%; a unique CA-based programme to manage watersheds draining into the Itaipu lake; national CA-based C seq & mitigation programme in Brazil; both in mainstreaming Phase
**Successful experiences worldwide:**

**Country cases**

- **Australia**—>50%, 22.03 Mha, ~100% in western & southern Australia, dust storm stopped since 1995; large extents of marginal areas rehabilitated; multi-stakeholder C seq programmes promoted; in mainstreaming

- **UK & Spain**—~15%, 562k; 8%, 1 Mha (20% Perm crops); farmer & civil society driven, CA driving change but some government support. Cordoba university campus farm fully run on CA management plus all teaching and research.

- **Kazakhstan & Uzbekistan**—~12.2%, 3 Mha, (55% CA+MT); ~3%, 0.12 Mha (8.5%, CA+MT), irrigated; Supported by government; large-scale impact on reversing land degradation
Successful experiences worldwide: Country cases

West Asia, South & South-East Asia, East Asia, Africa

**Iran & Syria** - ~2%, 300 kha; 1%, 30 kha; locally manufactured seed drills, under severe sanctions; farmers networking; government supported national initiatives

**India** - ~2%, 3.5 Mha; include rice systems; locally manufactured seed drills; government support growing but fragmented

**China** - ~7%, 9 Mha; include rice systems; locally manufactured seed drills, government support; CA Institute
Successful experiences worldwide: Country cases

West Asia, South & South-East Asia, East Asia, Africa

**South Africa** - ~25%, 1.2 Mha (50% NT); initial mainstreaming phase; farmer associations; government support

**Ghana** - ~5%; 235 kha; smallholders; CA training Centre; scaling initiatives

**Morocco** - ~<2%; 13 kha; small and large-scale; scaling to 2 Mha target; government support; Triple A initiative with CA announced at COP22
Learnings

Conditions for Adoption & Mainstreaming – necessary vs sufficient

Global crises as drivers of CA adoption and spread
Five ‘critical criteria of coordinated success’ necessary for adoption & mainstreaming national CA movements:

Number one: The presence of champions and pioneer farmers, and champion institutions and champion institutional leaders.

Number two: The presence of farmers & their communities coming together to form powerful farmer organizations for proactive actions and greater self-reliance?
Learnings

Conditions for Adoption & Mainstreaming

**Number three:** The presence of education, research and innovation systems supported by new communication technology that have aligned themselves to promoting the new paradigm?

**Number four:** The presence of governance, local & national that creates policies, opportunities and institutional support for CA paradigm change?

**Number five:** The presence of effective capacity of farmers & community to partner with the business service sector in ways that benefits the farmer, community and society at large including nature?
Learnings

Global crises as drivers of CA adoption & spread

- Soil erosion
- Droughts
- Cost of energy & inputs
- Natural resource degradation
- Ecosystem dysfunction
- Climate breakdown
- Food insecurity
- Smallholder livelihoods
- Science & education
- International development

(Despite, CA spreading, largely farmer-led .... but there are contemporary struggles going on in all these crises areas)
Given the growing worldwide spread of CA, the question that arises is: So what?

In other words, do we continue with ‘CA business as usual’ i.e. modest growth and reacting to chronic and looming crises, or is there something more we must learn & do?

By taking a broader look at what is going on in the world in the global food and agriculture system, could we see what more can we learn and act upon?

Perhaps, we must become more proactive, converge with or complement other struggles, given the interconnectedness of these crises?
The global burden of chronic challenges

First mass extermination
(Proc Nat Academy Sci USA, 2020)

The Anthropocene
Capitalocene
Necrocene

INDEPENDENT

Earth accelerating towards sixth mass extinction event that could see ‘disintegration of civilisation’, scientists warn

Stop The Wildlife Trade: ‘Extinction breeds extinction’, says grim new study revealing more than 500 species are on course to go extinct in next two decades - around the same figure for the whole of the twentieth century

“There is time, but the window of opportunity is almost closed. We must save what we can, or lose the opportunity to do so forever........ It is something that humanity cannot permit, as it may be a tipping point for the collapse of civilization. What is at stake is the fate of humanity and most living species. Future generations deserve better from us.”

www.pnas.org/cgi/doi/10.1073/pnas.1922686117
Food & agriculture system is the leading cause of global species extinction, habitat destruction, land degradation & abandonment, water pollution, ocean & underground dead zones, climate change & human ill health.

Remember - WITHIN the global burden of chronic crises!

- 477 gallons of water are required to produce 1 lb. of eggs & almost 900 gallons of water are needed for 1 lb. of cheese.
- Livestock or livestock feed occupies 1/3 of the earth’s total ice-free land.
- Livestock is responsible for 65% of all human-related emissions of nitrous oxide (a greenhouse gas with 296 times the global warming potential of carbon dioxide, and which stays in the atmosphere for 150 years).
- Animal agriculture is responsible for more greenhouse gas emissions than the combined exhaust from all transportation.
- Animal agriculture is responsible for up to 91% of Amazon destruction.
- 2,500 gallons of water are needed to produce 1 pound of beef.
- As many as 2.7 trillion animals are pulled from the ocean each year, & 3/4 of the world’s fisheries are exploited or depleted.
Global burden of chronic challenges in the food and agriculture system

1. 70-80% area & production for animals
2. Land and biodiversity degradation
3. Water and atmospheric pollution
4. Climate & ecological breakdown
5. Pervasive poverty
6. Poor diets and ill-health
7. Poor quality education & research
8. Ineffective institutions
9. Land use and policy miss-match
10. Corporate dominance
11. Neoliberal capitalism
12. Loss of trust in politicians

A self-destroying political & economic ideology & a food regime with a distribution system in which farmers, consumers and the public have little effective say!

https://inclusiveresponsibility.earth
The future of food and agriculture system
Ways forward? -- Is there hope?

For everyone to think about:
We have to ask ourselves, Is there hope? By all of us looking around at how CA has been spreading worldwide and at the growing recognition of the important role that CA plays in solutions of these chronic challenges faced by the food and agriculture system, the conclusion is: A definite Yes!

With coming together of global experts, we thought that within the broader context everyone needs to explore the concept of ‘inclusive responsibility’, which is a guiding framework of ethics and values to promote sustainable and responsible food & agriculture system based on six interconnected themes.

1. holistic paradigms and mindsets that deal with complexity (systems vs components)
2. narratives of abundance rather than lack (abundance vs scarcity)
3. multifunctional paradigms of agriculture (CA-based)
4. decentralising power in the food and economic systems (localization)
5. diets which promote human & planetary health
6. powerful social movements and civil society
Thank you

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