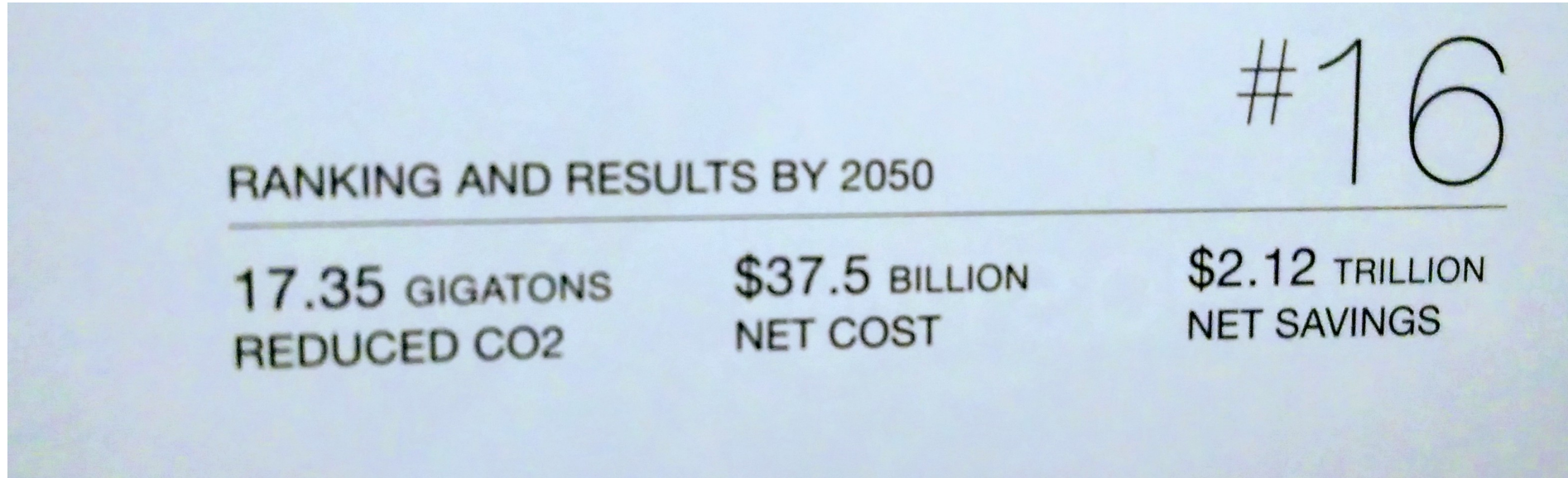


FOOD: CONSERVATION AGRICULTURE

With TRANSITION NORTHWICH

Food for thought:



\$37,500,000,000

\$2,120,000,000,000

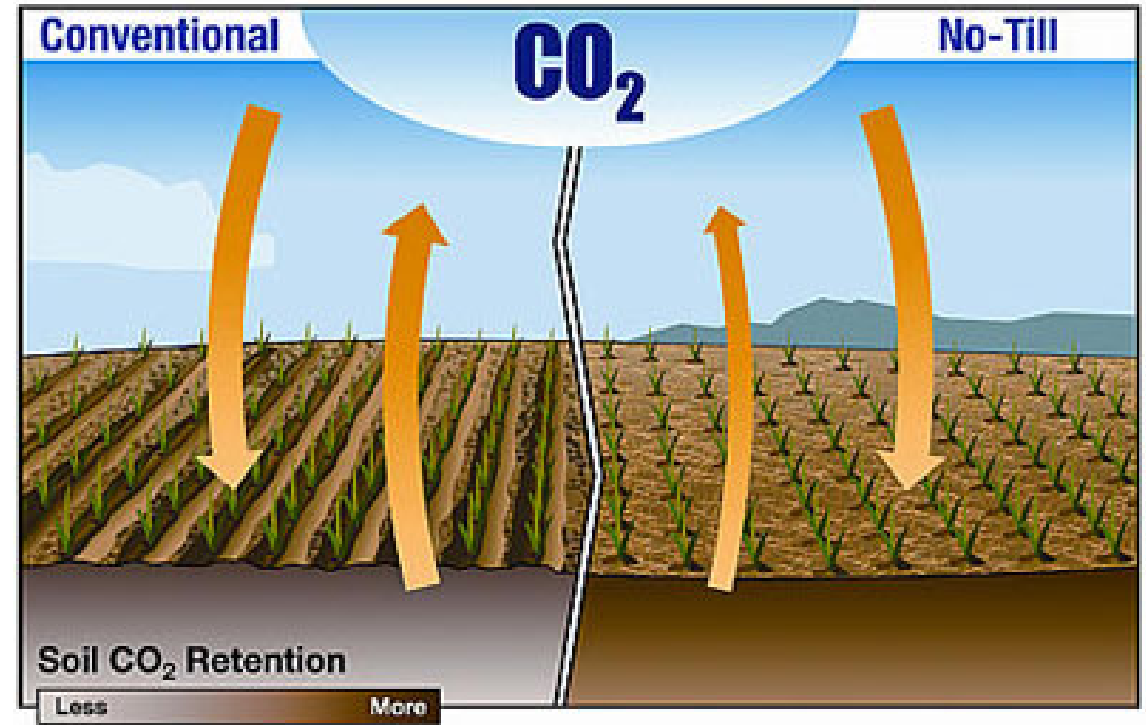
... the plow/ plough is a standard tool for loosening soil and turning over the top layer before planting crops.

...plows/ploughs are absent on farms practising conservation agriculture,

and for good reason...



...water in the freshly tilled soil evaporates. Soil itself can be blown or washed away and carbon held within it released into the atmosphere.



Though intended to prepare a field to be productive, tilling can actually make it nutrient poor and less life giving,

Soil erosion and degradation gave rise to the practice of conservation agriculture in Brazil and Argentina in the 1970s.



Though in truth most farms were no till or low till before the eighteenth century's industrial innovations.

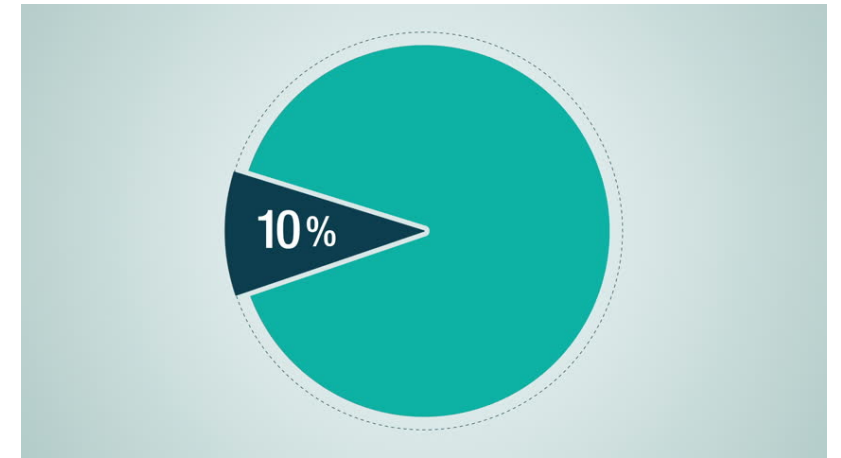
Conservation agriculture adheres to three core principles:

- Minimize soil disturbance
- Maintain soil cover
- Manage crop rotation



Conservation agriculture differs from regenerative practices in its use of synthetic fertilizers and pesticides.

Conservation agriculture is practised on 10% of the 3 billion acres of annual crops.



It is prevalent in South America, North America, Australia and New Zealand, among both large-scale operations and small ones.

Absent tilling farmers

- Seed directly into the soil
- Leave crop residues after harvesting
- Or grow cover crops
- Crop rotation



Water retention makes fields more drought resistant or reduces the need for irrigation

Nutrient retention leads to increased fertility and can lower fertilizer input

Costs go down



Yields increase



Critics point out that modern no till, especially in Western countries, rely heavily on herbicide application and genetically modified crops.

Others argue that is not true conservation agriculture.

In most of Africa, herbicide is not used in no-till farming



A GMO IS:

the direct human manipulation of an organism's DNA in a laboratory environment.

A GMO IS NOT:

Plants and animals that are traditionally bred to achieve specific characteristics such as breeding dogs or cross-pollination of plants.

GMO?

Genetically Modified Organism

SCIENCE OF GMOS

Genetic modification may include the ADDITION OF DNA from species that would NOT BREED in nature.

Cross-species—or transgenic—genetic manipulation has gone so far as to **COMBINE FISH DNA WITH STRAWBERRIES** and tomatoes.

Genetic modification may also involve REMOVING SPECIFIC STRANDS OF DNA.

GMO foods have only existed in groceries since the late 1990's.

GMO life can be **patented**.

GM varieties of corn and potatoes are engineered to **PRODUCE THEIR OWN PESTICIDES**.

STUDIES OF GMOS

NO LONG-TERM TESTING. It took decades for the dangers of Trans-Fats (another artificial food) to become understood.

Mice fed GM pesticide-producing corn over four generations showed **ABNORMAL** structural and chemical changes to various organs and significantly reduced fertility.

Herbicide-resistant crops can cross-pollinate to create **HERBICIDE-RESISTANT WEEDS**.

Herbicide-producing GMO crops have led to **resistant insects**.

TRANSGENIC DNA HAS BEEN FOUND IN **WILD CAROLAS** IN NORTH CAROLINA.

PREVALENCE OF GMOS

You probably eat GMOS **EVERY DAY**.

30,000 (average GMOs used on grocery store shelves largely because of how many processed foods contain soy)

PERCENT OF GMOS IN TOTAL CROP PRODUCTION 2011 (USA)

Commodity	Percentage
Soybeans	94%
Corn	90%
Cash	88%

PUBLIC OPINION OF GMOS

Polls consistently show that a significant majority of North Americans would **LIKE TO BE ABLE TO TELL** if the food they're purchasing contains GMOS.

OUT OF A CBS NEWS POLL:

- 87% want GMOS labelled
- 53% would not buy genetically modified food

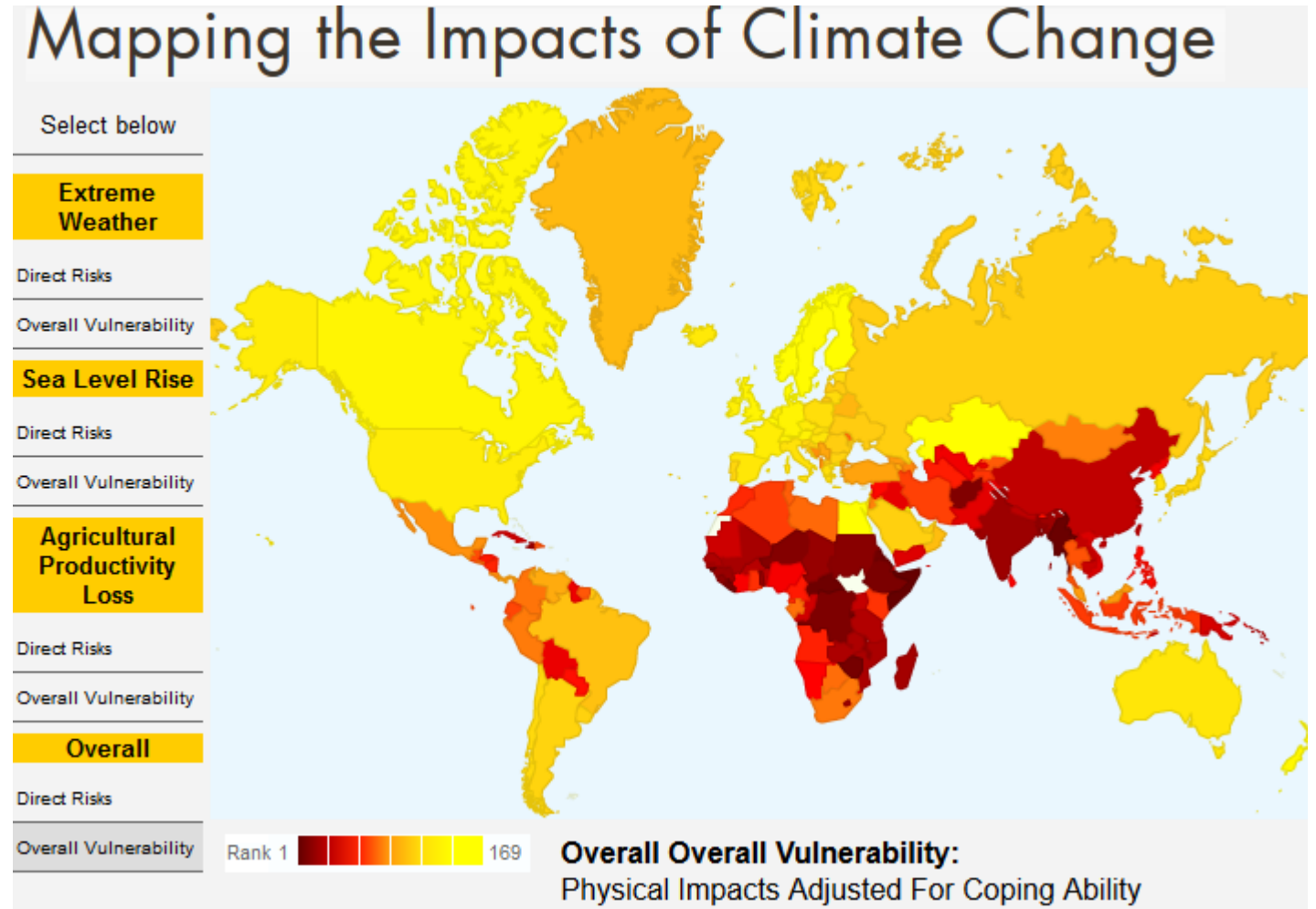
NATIONAL OPINIONS OF GMOS:

The USA is the **largest** producer of GMO crops and **does not mandate** labels for GMO food.

In 30 other countries there are bans or restrictions on the production of GMOS, because they are **not considered proven safe**.

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Because conservation agriculture makes land more resilient to climate-related events such as long droughts and heavy downpours, it is doubly valuable in a warming world

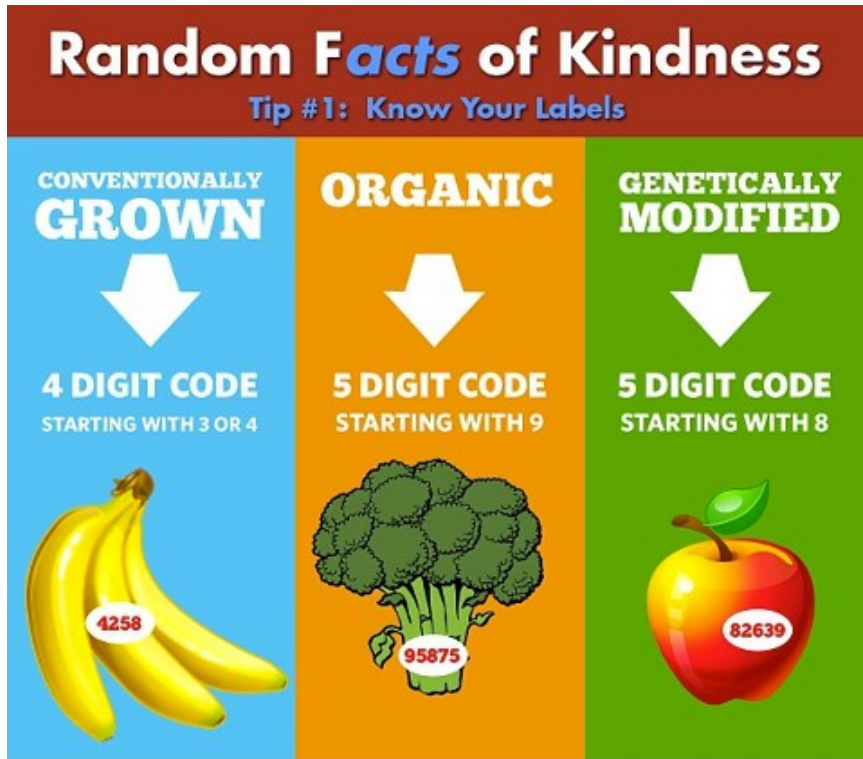


Core challenges

- Up front costs
- Time for return
- Leased farms



With widespread programs to educate, equip and financially support farmers, millions more could adopt conservation agriculture, reap its benefits, and enhance farmland as a carbon storehouse



For investigation: please feedback any information you have.

Guy Standing: Basic Income – How we can make it happen

What about the weeds? Many of them can be eaten - Ant