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Why Modern Farming is Unsustainable

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The farmer's job is to manage the original solar energy collector-the plant leaf. We use the sun's energy collected by plants to take the carbon from carbon dioxide and the hydrogen from water to synthesise carbohydrates and give off oxygen. When the carbohydrate is eaten, burned or it just decays, the opposite happens- oxygen is required, carbon dioxide and water are given up and energy is released.

Of course, this is nothing new. This cycle was working perfectly well long before farmers came on the scene. We merely try to improve on nature by fighting pests and disease, by providing optimum nutrition and by trying to eliminate plants from our fields other than those that we wish to harvest.

Green plants are the only primary producers of foodstuffs and humans are dependent on plants for all of their food, either directly or indirectly. All of our human energy comes from the sun and the feeding of the world depends on our ability to collect enough solar energy and convert it to food energy through farming plants .It used to be so simple. Around 30% of crops were used to fuel the horses, oxen and humans to provide the muscle for field and transport work. Soil fertility was maintained by recycling nutrients, crop rotation including nitrogen fixing legumes and fallows. Yields were low but so was the world population.

But in the past 70 years or so there has been a dramatic development that has enabled the world population to triple. WE have found a way to cheat!

Instead of just converting current sunshine in to food energy we have found how to convert ancient sunshine collected by pre-historic plants and marine organisms in to food energy.
We now convert hydrocarbons in to carbohydrates.

The present population of nearly7 billion people is being supported not just on current sunshine but on sunshine that reached this earth millions of years ago.

The land previously used to feed work animals can now be used to provide human food as diesel engines provide the muscle. Fossil fuel sourced pesticides and nitrogen fertiliser have dramatically increased yields and enabled the green revolution in India and elsewhere.

Amazingly, if transport and processing is included, we now use about 10 calories of fossil energy to produce each calorie of food energy in an average meat based diet.

Converting fossil energy in to a smaller amount of more expensive food energy worked well when fossil energy was cheap and plentiful but will fail when it is scarce and expensive.

Tags: **carbon dioxide**, **diesel**, **fossil fuel**, **green plants**, **modern farming**, **pesticides**, **solar energy**, **world population**, **yields**