



SYSTEM DIMENSIONS	CHEMICAL AND PHYSICAL	BIOLOGICAL COMPONENTS	HUMAN USES
Extent Pattern	Nutrients, Carbon, Oxygen Contaminants Physical	Plants and Animals Communities Ecological Productivity	Food, Fiber, and Water Recreation and Other Services

● Agricultural Inputs and Outputs

What Is This Indicator, and Why Is It Important? This indicator reports the amount of inputs used to produce one unit of output, with 1975 as the base year. So, for any input, the index value for a given year describes whether more or less of that input was used to produce a unit of output in that year than in 1975. The indicator also reports agricultural outputs over time, again compared to the output in 1975.

This is a very broad analysis. For example, all fertilizers used on U.S. farms were divided by all agricultural outputs—even if different amounts of fertilizer were used to produce each commodity. Agricultural production is driven by physical inputs and by the knowledge and skill of farmers, plant breeders, and others. A decreasing input index results because the input is used more efficiently by farmers (e.g., less fertilizer per ton of corn due to targeted application), or because of a series of advances (e.g., less labor required because of increased mechanization and more effective pesticides). Because inputs are often expensive and, like pesticides and fertilizers, may have environmental consequences, input trends are an important indicator of the long-term health of the agricultural enterprise and the level of its environmental impact.

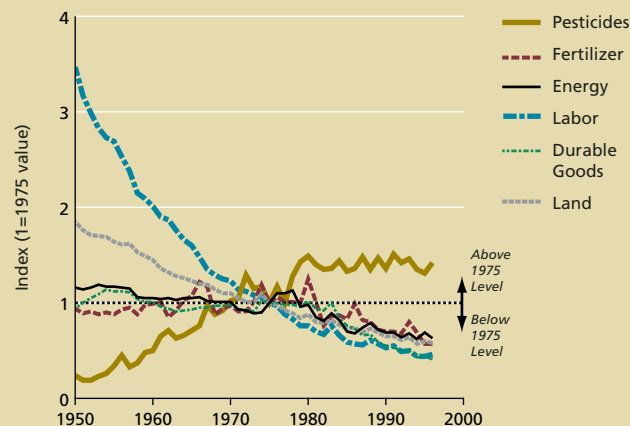
What Do the Data Show? U.S. agricultural output has been increasing steadily since 1950, while the major inputs required to produce a unit of that output—with the exception of pesticides—have decreased. The amounts of both labor and land needed to produce a unit of output have fallen steadily since 1950, although the decrease in labor has been much larger. Farmers have produced more output per unit of fertilizer, energy, and durable goods such as tractors since the mid-1970s. Pesticide use per unit of output, which showed steady increases from the 1950s, leveled off around 1980.

Discussion As technology and farming practices change, inputs can change considerably. For example, a pound of pesticides today provides far more pest control than did the same amount 30 years ago. For this reason, this indicator relies upon a complex analysis of the quantities and quality of inputs used (see the technical note). A similar analysis was used for outputs, because they cannot simply be added together (a pound of strawberries is not equal to a pound of corn).

The indicator focuses on a few major, quantifiable, inputs. This means that some factors, such as changes in plant breeding (including the introduction of genetically engineered crops), are not addressed at all, and some inputs, such as water, are addressed only indirectly (in this case, through the energy costs associated with irrigation).

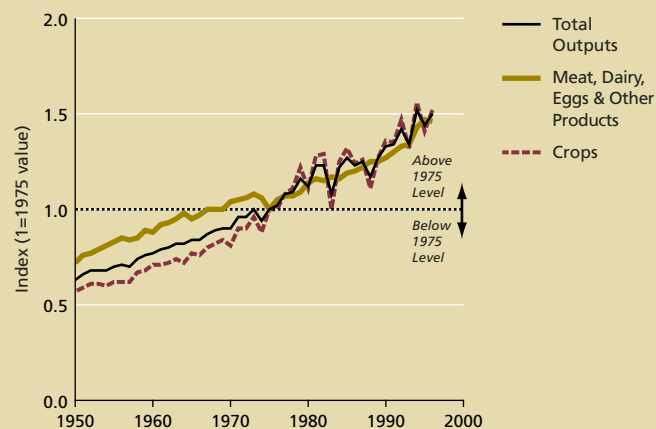
The technical note for this indicator is on page 238.

Agricultural Inputs per Unit of Output



Data Source: USDA Economic Research Service. Coverage: all 50 states.

Agricultural Outputs



Data Source: USDA Economic Research Service. Coverage: all 50 states.