

Ethanol Production Using Corn

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While ethanol from corn can provide a small displacement of oil demand, it is unsuitable for energy independence. Consider the following figures:

- 2.8 gallons per bushel of corn
- 135 bushels/acre
- 400 gallons/acre

Next:

- 311 gallons per metric ton
- 7.4 barrels metric ton
- 10-million bbl day for US gasoline use
- 42 gallons/bbl
- 420 million gallons/day

So, the requirement is for

- ~180 billion gallons per year
- 450 million acres
- US farmland ~925 million acres

Further, the problem is for every gallon of gasoline equivalent from corn ethanol, you expend 0.7 gallons worth of energy.

Ethanol Production Using Switchgrass

- 114 million acres required for 108 billion gallons per year.

Source:

http://www.harvestcleanenergy.org/enews/enews_0505/enews_0505_Cellulosic_Ethanol.htm

It is possible that genetically-modified switchgrass will produce 20 tons/acre, double existing yields, reducing required acreage to 60 million acres.

The problem at this time is that the process is not commercialized.