

Re: Electric Farm Tractors

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- *From:* bill <ford_prefect42@xxxxxxxxxxxx>
 - *Date:* Thu, 02 Aug 2007 05:21:48 -0700
-

On Aug 2, 12:35 am, "Carl Ijames" <carl.ija...@xxxxxxxxxxxxxxxxxxxx>
wrote:

Eeyore wrote:

bill wrote:

Eeyore wrote:

bill wrote:

4.
it's
possible
to
electrify
fields
right
now

It's
absurdly
impractical.

well
graham, that
depends on
the field. As
applies to
iowa
unirrigated
corn fiends,
you are
quite
correct. as
applies to
california

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circle
irrigated
cropland, it
would be a
pretty
small
investment
on top of
the extant
irrigation
system.
So....
Figure 20%
of
agricultural
diesel could
be replaced
with
electric, not
a
bad
chunk to
dig in 1 go.

Are you seriously
suggesting that tractors drag
a cable round
the field behind
them ?

Circular irrigated fields have a very long
wheeled arm on a
swivel that already drives itself around the
fields. running an
electric cable along that arm and attaching it
to a tractor would
be
an absolutely trivial addition, so yes, for
certain applications,
I
am.

http://www.cgstock.com/locations/new_richmond/6308

And what would be the point of having a tractor there ?

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Plowing, seeding, fertilizing, harvesting, you know, all the usual things a tractor would be on a field for.

I always thought farm tractors should be the most practical place for a battery-powered electric vehicle. They need to be fairly heavy, so the battery pack weight is at worst not a minus, and at best replaces other ballast. They might cover miles and miles going up and down a field plowing or whatever but as the crow flies they don't get that far from home base so range isn't nearly the issue it is for a vehicle used for commuting.

To here you're more or less correct.

They don't get used at night very much so the charge cycle could be almost all night, so no quick charging to reduce battery life.

Some do some don't, so we're limiting the perspective market a mite here.

Tractors need tons of torque at very low speed, which electric motors do very well, but don't need as much horsepower as a typical small econobox car. They don't need very high top speeds which keeps the drivetrain simpler. Yes, you have all the normal needs for auxillary power, like ac and heat, so it's not perfect. However, you don't have to worry about aerodynamics, either :-).

Here we have a problem. A typical tractor will be running 200–400 HP and using most of it most of the time. Running equipment like a hay baler or any other PTO driven equipment alone will use WAY more power than an econobox. Tractors are very rarely simply driven around the fields, they are accomplishing something while they are doing it, that consumes power, great gobs of power. By comparison, an econobox at cruising speed is using roughly 20 hp, and only uses the rest of its 60 hp for takeoffs.

Even if a battery pack could only last for half a day of work, given the rest of the scale of the equipment on a medium to large farm it would be practical to just swap in a fresh battery pack for the afternoon.

You will never see "swappable" battery packs that size, they

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make up most of the mass and cost of the vehicle!