

Green Mobility: Is EV the Only Way?

An alternative options to electric vehicles in biofuels and why this tech could succeed.

Focusing on bioethanol

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Three ways to achieve CN in road transportation fuel

Gasoline

Can we wait?

Biofuel (Liquid fuel alternative) 1st Generation 2nd Generation?

Synthetic fuel (Liquid fuel alternative)?

Electrification

Hydrogen fuel cell?

2022

2030

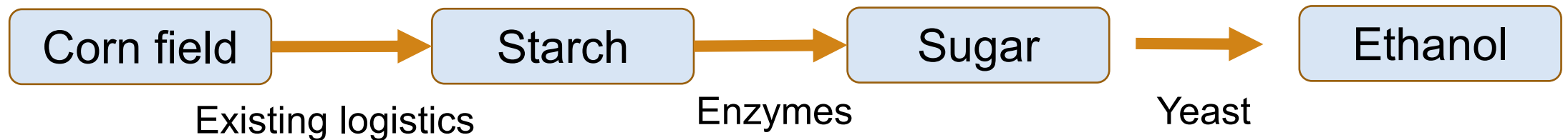
2035

Bioethanol Feedstocks

1st Generation (technology and logistics available for decades)

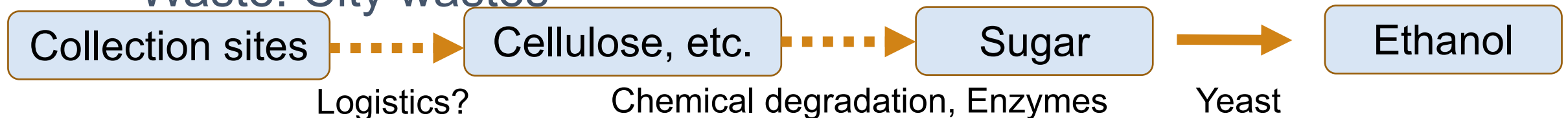
- Starch: Corn, Wheat
- Sugar: Sugarcane, Sugarbeet

Same as bourbon fermentation



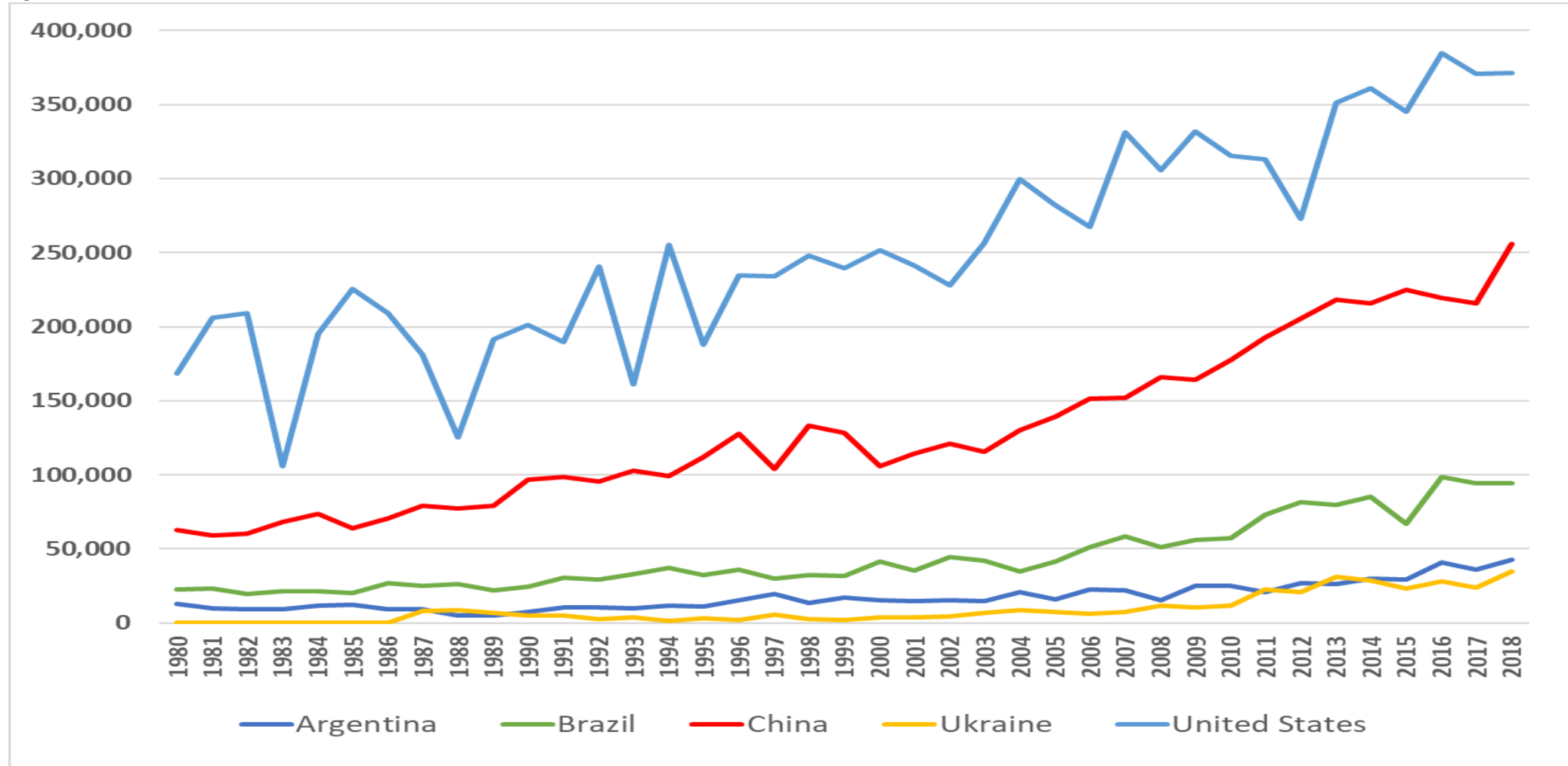
2nd Generation (technology, cost, logistics)

- Cellulose: Wood, Plant materials
- Waste: City wastes



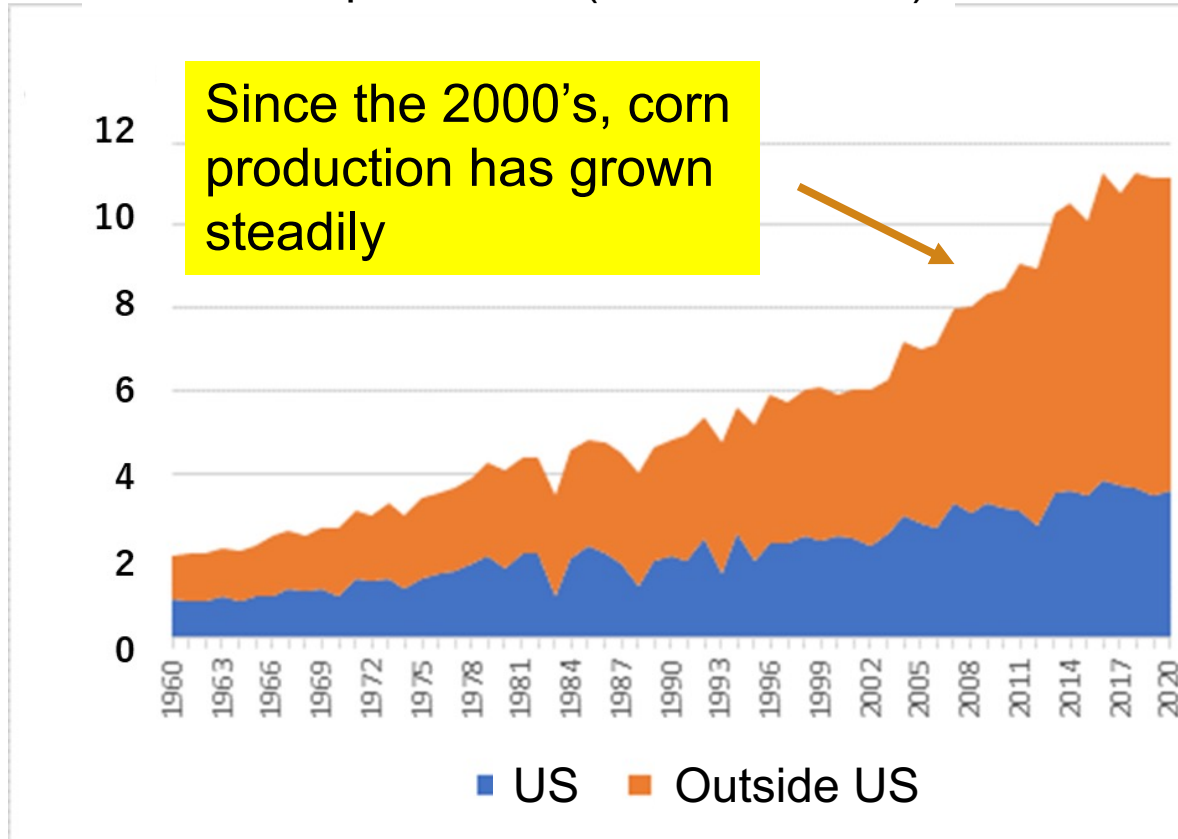
World Corn Production

Billion MT

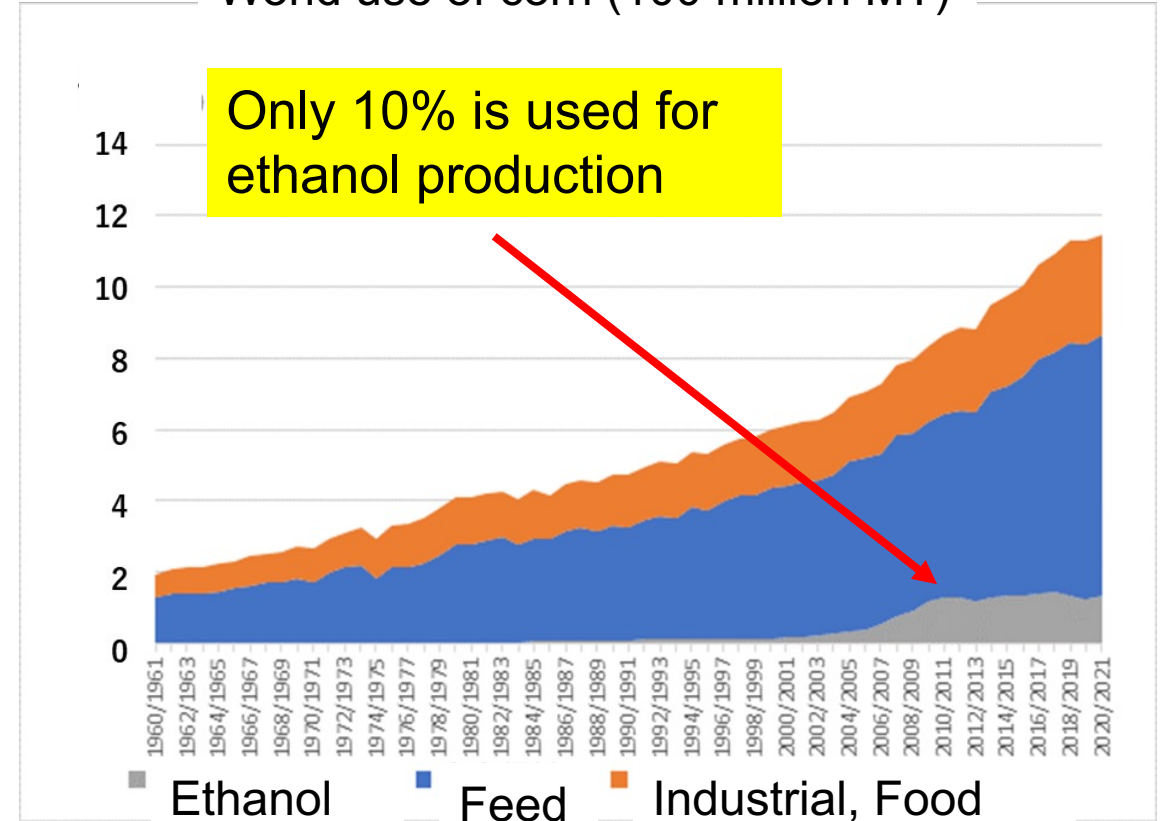


Corn – World Production and Use for Ethanol Production

World corn production (100 million MT)



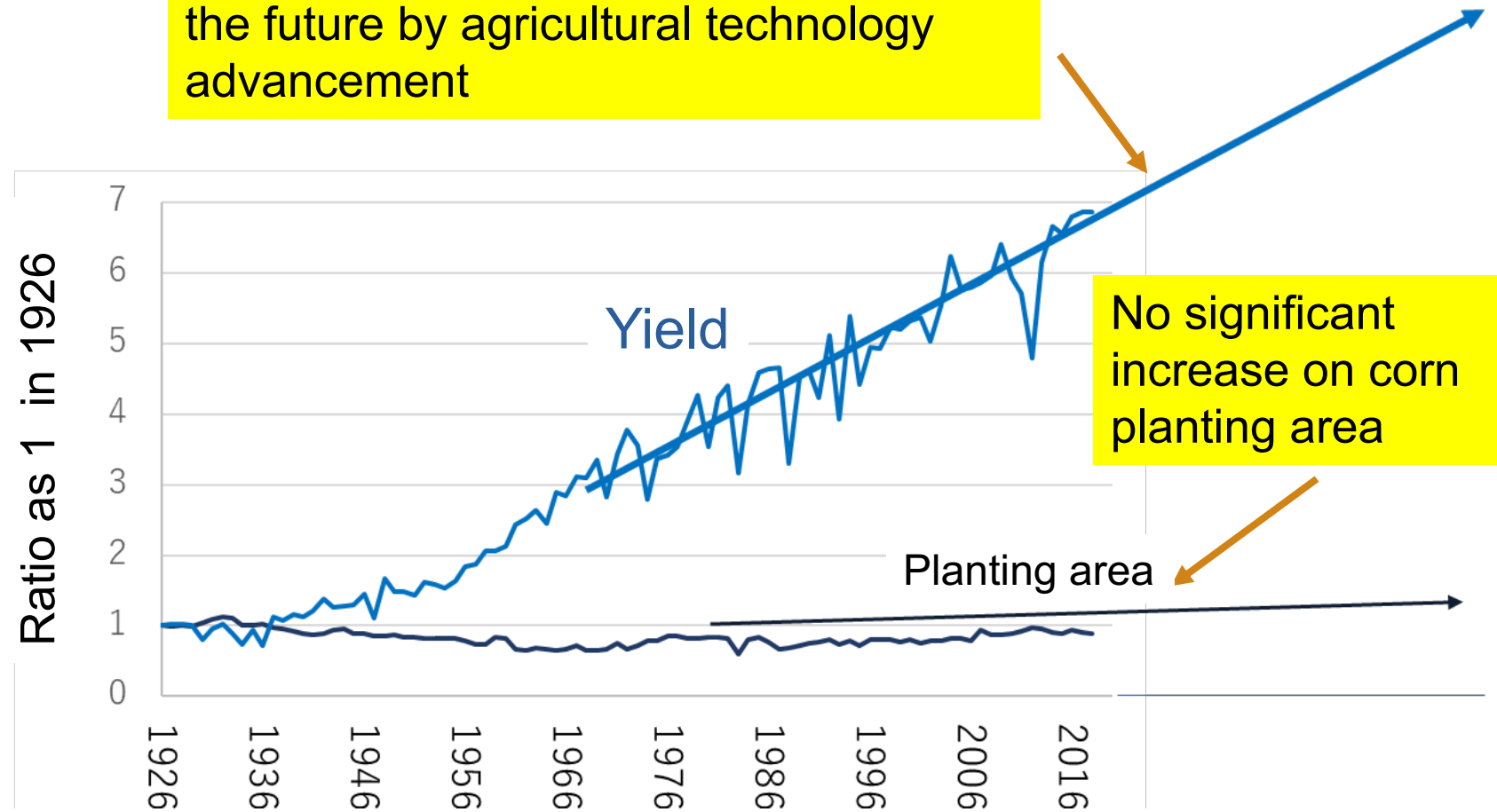
World use of corn (100 million MT)



Corn – Future Supply

Yield per acre will steadily grow in the future as agricultural technology, machinery and seed technology advances.

Corn yield continues growing trend in the future by agricultural technology advancement



No significant increase on corn planting area

Yield per acreage and planting area (1926 -) of US corn and their future trend