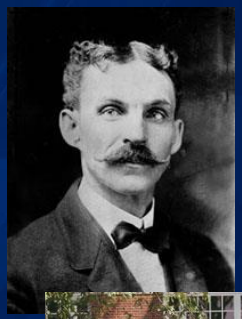
#Farm to Car
“How We Are Driving Change”
Ford Motor Company

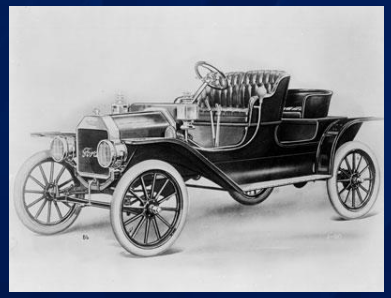
BUILT Ford PROUD

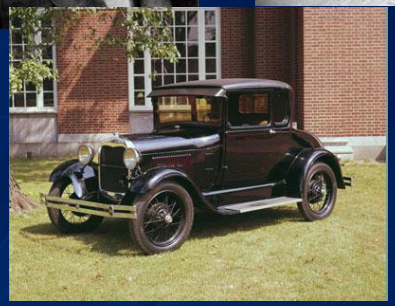
Go Further

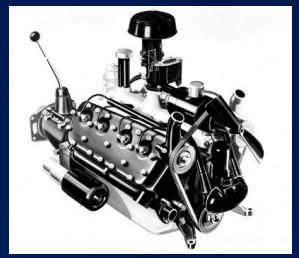
FORD'S 115+ YEAR HISTORY IN JUST 2 SLIDES

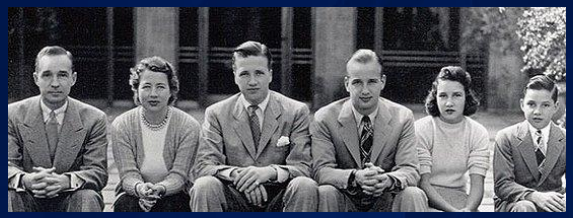
FROM 1896….

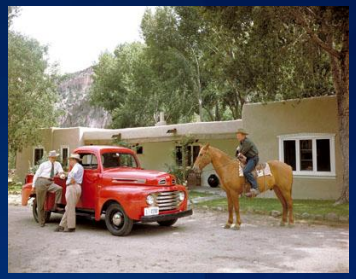




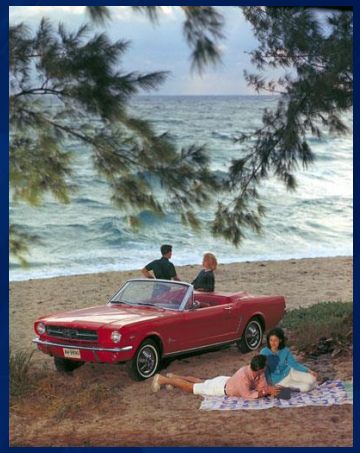


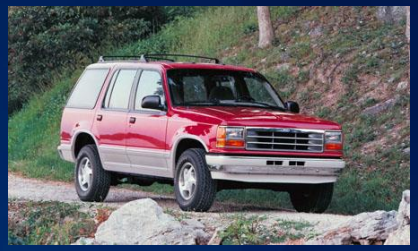






…TO TODAY





Built Ford Proud

Over a century ago we revolutionized the assembly line.
And then we started building. Building the world's first affordable car.
The most beloved pickup truck on the road. The iconic American sports car.
And the SUV most people think of when they think of an SUV.

We helped build the interstate system. And the city of Detroit.
We even built Mission Control for the moon landing.

Along the way, we built a family of over 200,000 strong.

We've built many things that we're proud to say we've built.

And as we build toward the future, thinking about electric vehicles and autonomous vehicles, ridesharing and urban mobility solutions to create free-flowing cities, we know the most important thing we can build is what we've been building for 115 years: trust.

You can see the pride in everything we build.

How do you know?

We put our name on it.

Henry Ford, the Soy Bean Farmer

- Henry Ford started this theory back in 1930 as a Soy Bean Farmer
  - If you can make it with petroleum oil, you can make it with Soy Bean Oil.

- Henry spent $1.25 million dollars from 1932-1933 to research soy crops

- Henry originally built the Model T's to help the farmers with their crops and farms. Each vehicle was built with a specific idea in mind to help move crops and it was a cheaper alternative to buying tractors for some folks.
  i. e. Wagon Wheels in front and Grain Binder Wheels in the back

Go Further

Transforming crops into motor car materials

- The notion of American farms providing the raw materials of manufacturing isn't new.
- In 1934, Henry Ford said, "Someday you and I will see the day when auto bodies will be grown down on the farm."
- Seven years later, he built a prototype of a car with side panels made from soybeans and other crops. The vehicle wasn't completely organic, but it was reinforced by plant-based material.
- When World War II all but halted auto production, the push for plant-based plastics fell by the wayside.
- More than half a century later, Henry Ford's passion for combining agriculture with the fruits of industry has been reignited at the company that bears his name.

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Spanish Moss

- Ford, who grew up on the family farm, developed a soybean factory on the Rouge site to try to turn agricultural products into industrial parts for tractors and cars
- Ford was often called the “Largest Soybean Farmer” in Michigan with 7,400 acres
- When he had often had parts shipped to him, they would use the oak shipping crates as parts of the flooring and the Spanish moss that was used as stuffing for the seats in the Model T
- In 1927, Louisiana alone sold 1200 carloads of Spanish moss -- worth around fifty million of today's dollars

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30,521

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Soy Beans

That is the amount of soy beans in each and every vehicle produced in North America today

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First Automaker

- First Automaker to develop soy-foam seats.
- 10% of every vehicle is made with petroleum based plastics
- Petroleum is made over millions of years, and plants can grown each year
- We starting working back in 2000, to replace petroleum based plastics with plant based materials

Benefits of Plant Based Materials

1. Light Weight & Fuel Efficient
2. Cost Savings/Neutral
3. Better for the Environment
4. Helps Farmers Generate Revenue

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Ford Dream Team

- In 2007, when oil prices spiked, everyone at Ford looked to these scientists in the Bio-Labs for their ideas
- It took over 8 years for this foam to be created, tested and implemented in the vehicles
- Average time to research, create and test is 18 months to 5 years

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Ford Farm to Car Video

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Ag Products that Ford is currently working with:

- These are not the same materials that you would find on your kitchen table.
- These are items that would be discarded or worse yet, burned or placed in land fills
  - Tomato Skins and stems
  - Sea Algae
  - Agave Skins
  - Currency removed from Circulation
  - Soy Beans
  - Wheat Straw
  - Cotton
  - Water Bottles

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Soy Beans

- Every vehicle produced in North America for the last 11 years contains soy beans.
  - Seat cushion foams, headrests, backs,
  - 31,251 soybeans in each vehicle
- 2008 Mustang, 1st vehicle produced in 2007
- Today, every vehicle produced in North America has soy based foam!

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Wheat Straw, Coconut and Tree Fibers

- Ford Flex – using the bio product of the food portion of wheat, was used to fortify the plastics in the Ford Flex storage bins
- Coconut or the hair off of the shell is used in the floor mats in the Ford Focus
- Cellulose from tree fibers is also recently used to build the structure in various vehicle arm rests in the Lincoln MKX

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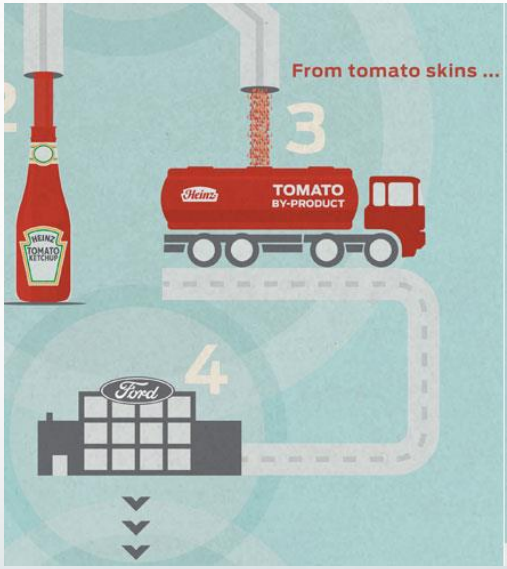
Tomato Fibers from Heinz

- Heinz produces over 2 million tomatoes each year

- Peels, Stems and Seeds would be used
- Makes the plastics in various pieces in the vehicle



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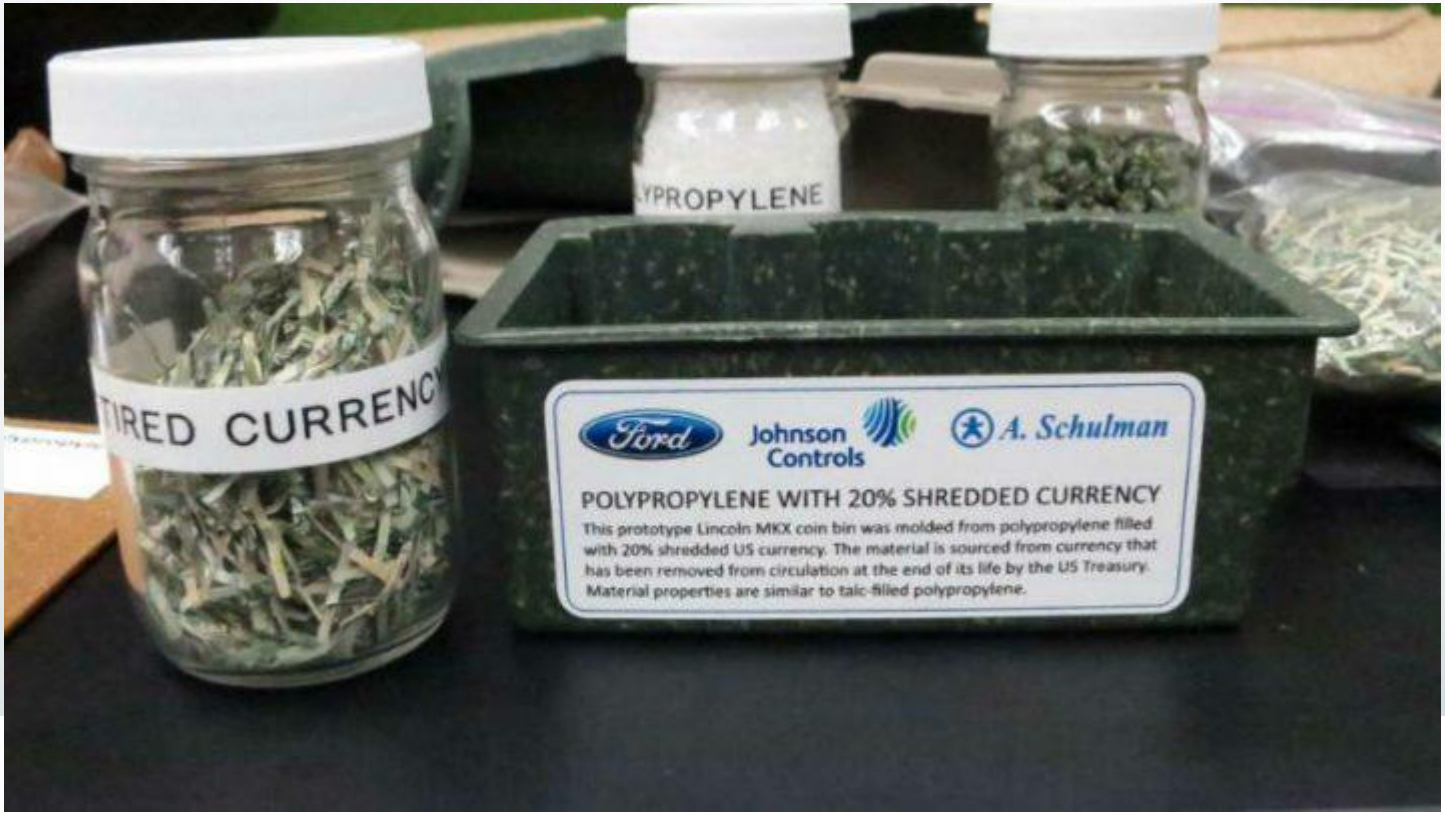
Currency from the Federal Reserve

- 100 million pounds of currency are retired each week
- Most is either burned or sent to land fills
- Ford is working on using these fibers in the plastics like the coin trays



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Rice Hulls

- Used in the electric brackets in the F-150

➢ 45,000 pounds of hulls used in the first year. PP compound reinforced with rice hulls is being used to replace talc reinforced PP in an electrical support bracket in the Ford F-150.

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Recycled Plastic Bottles & REPREVE

2 MILLION RECYCLED PLASTIC BOTTLES

Ford is the first automaker to use REPREVE® yarn in its seat fabric, which is the standard cloth seat fabric on the Focus Electric. REPREVE is a sustainable fiber produced from recycled materials, including plastic bottles. Through REPREVE, Ford plans to divert about 2 million post-consumer plastic bottles from landfills for use in new vehicles.

REPREVE is a registered trademark of Unifi, Inc.

42 RECYCLED PLASTIC BOTTLES

The cloth seat fabric in the Fusion Hybrid is made from REPREVE, the sustainable material equivalent of about 42 recycled plastic bottles made of polyethylene terephthalate (PET).

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Ford Escape

By the Sustainable Numbers: A Look at the 2018 Ford Escape

- Contains more than 10 pounds of scrap cotton from jeans, sweaters and t-shirts
- 25 clear plastic recycled bottles in cloth-seat Escape models
- About 31,250 soybeans

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Ford Vehicles

2019 FORD **ESCAPE**

- 10 pounds of scrap cotton from jeans, sweaters and t-shirts used in sound-absorption materials
- 25 clear plastic recycled bottles used in the carpeting

2019 FORD **FUSION**

- 38.9 clear plastic recycled bottles used in the cloth seats
- EcoLon post-consumer nylon carpeting is used as cylinder head covers

2019 FORD **F-150**

- Rice hulls are used to reinforce plastics in the F-150 electrical harnesses
- REPREVE fabric, made from recycled plastic bottles is used for seat material

2019 FORD **FLEX**

- 20% wheat straw bio-filler used to reinforce plastics, which are used in interior storage bins
- 31,250 soybeans are used in each vehicle

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Second Chance

- Leftover agave fibers find new life at Ford in Dearborn, MI, where the biomaterials team has been making sustainable, plant-based plastics to use in cars since 2000. With uses from cupholders to storage bins or more, an agave composite could help reduce vehicle weight, lower energy consumption, and potentially reduce the use of petroleum.

- According to Debbie Mielewski, Ford Senior Technical Leader of the biomaterials team, there are about 400 pounds of plastic on a typical car. “Our job is to find the right place for a green composite like this to help our impact on the planet. It is work that I’m really proud of, and it could have broad impact across numerous industries.”

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Ford is using other Products

SEAWEED | BAMBOO | HEMP | BEETLE SHELLS | AGAVE | CORN | EUCALYPTUS

Ford Motor Company Mission

The purpose of any company should be to make people's lives better. Otherwise they shouldn't exist.

We've come a long way and we have a long way to go

– Bill Ford, Executive Chairman, Ford Motor Company

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Sustainable Resources

- All resources are located on www.FordFarmBureauAdvantage.com, under the Ag In the Classroom Link

Sustainable Materials:

- https://www.youtube.com/watch?v=pEwWgnJl6m4 How Ford is partnering with McDonald's to input coffee chaff in Ford Mustang
- https://www.youtube.com/watch?v=Aa9d77hNN-0&t=43s - Farm To Car
- https://youtu.be/tN32wUwo2xc - Agave Video
- https://www.youtube.com/watch?v=fY5FT0KM-jU – Interview with Ford Green Team

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Ag In The Classroom Kits

Materials – Lesson Plan #1 – Available On-line

- **Activity 1: Who was Henry Ford?**
- **Activity 2: What's in your Ford Vehicle?**
- **Activity 3: What is Agave?**
- **Activity 4: Bamboo**

Digital Materials

- **Interactive Videos and Lesson Plans – 4Q 2019**

- **All located at www.FordFarmBureauAdvantage.com, Under Ag In The Classroom Links**

- **All other questions, can be directed to Joanne Hogan, jhogan1@ford.com for assistance.**

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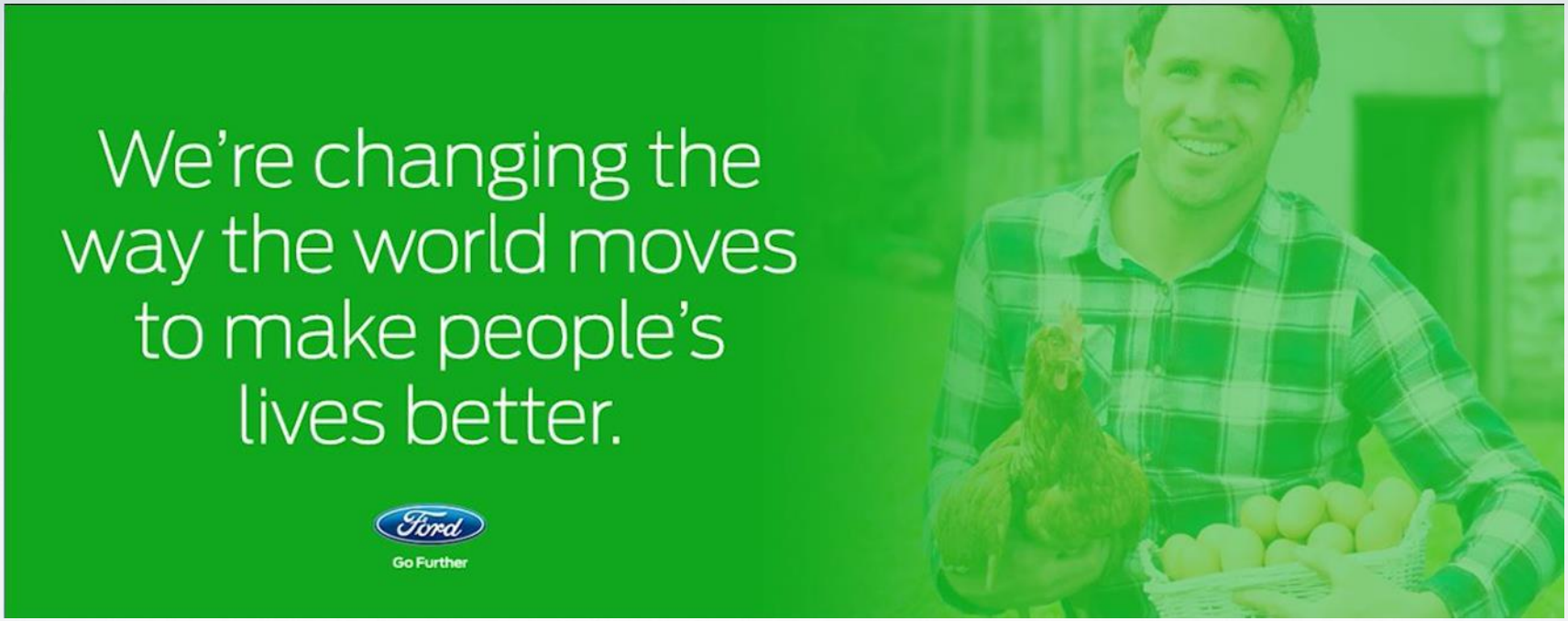

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