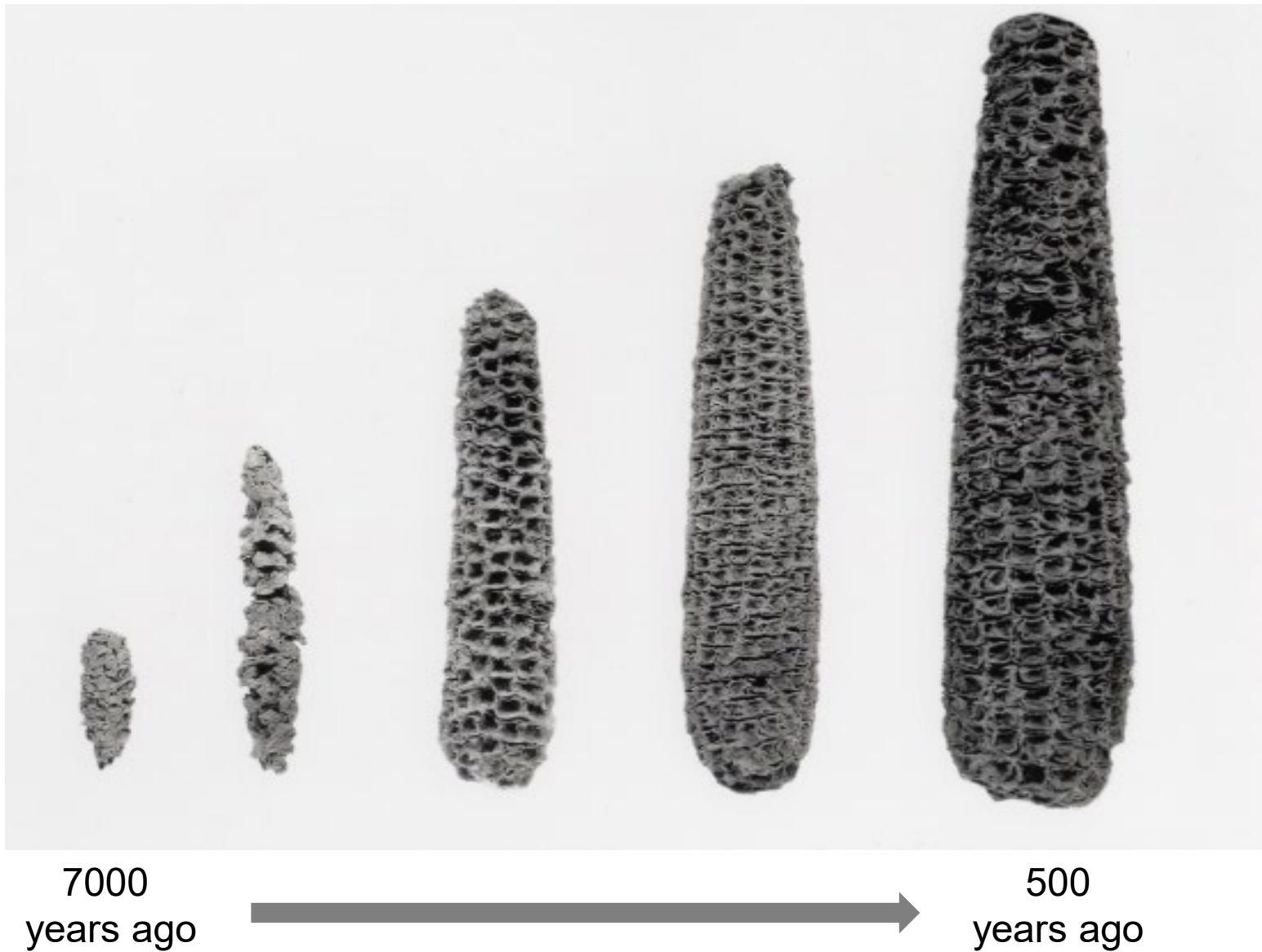






Red Heinz



Purple Heinz





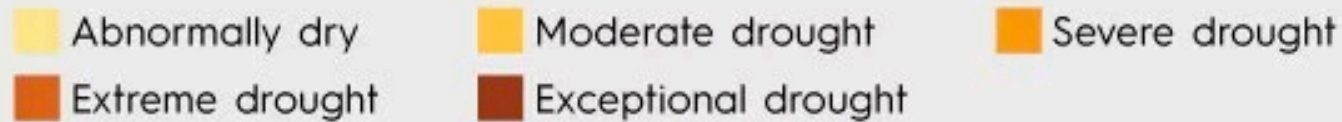
Red Heinz: Drought conditions



Purple Heinz: Drought conditions

A Record-Breaking Drought

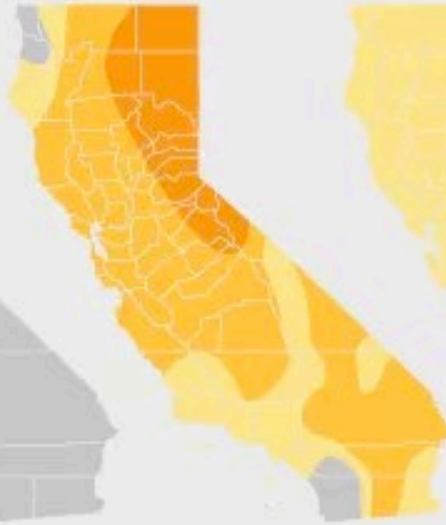
41% of the state is facing “exceptional drought” (the most severe kind).



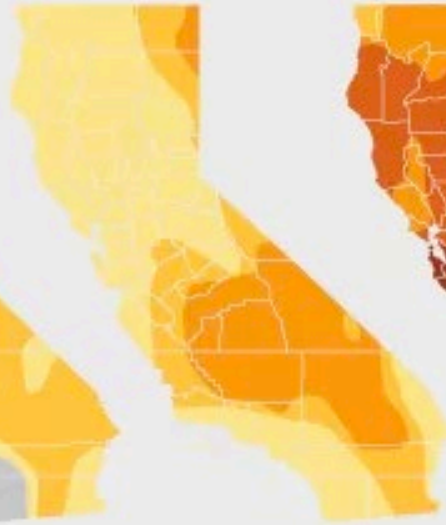
2011



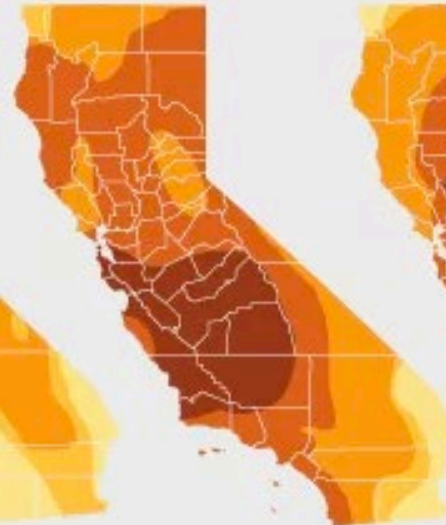
2012



2013



2014



2015



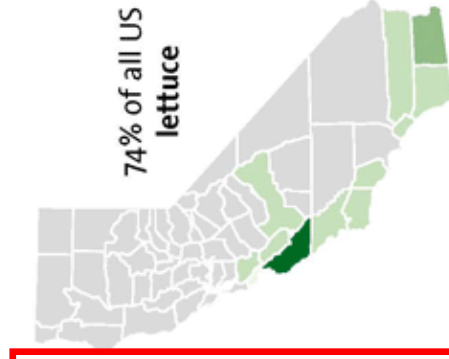
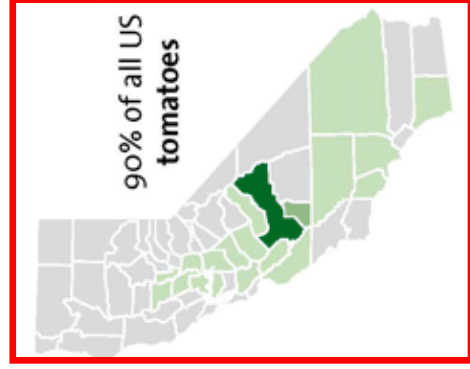
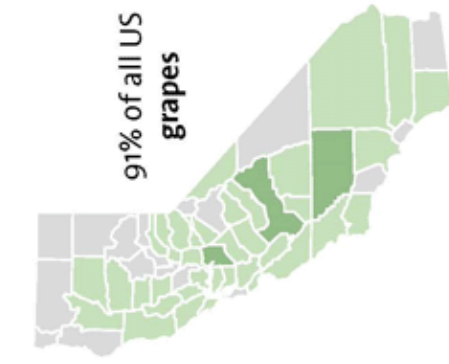
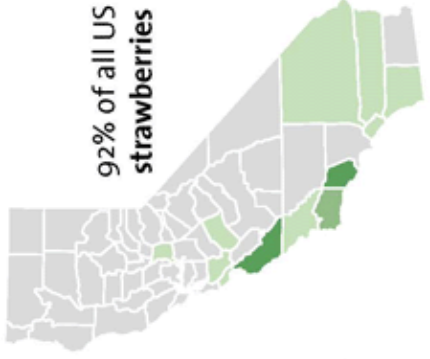
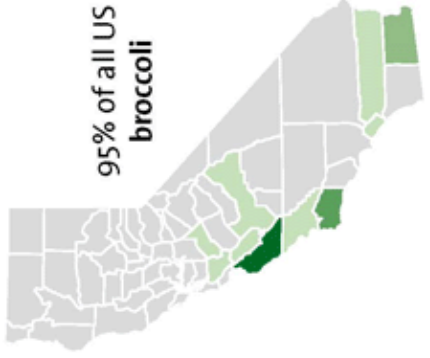
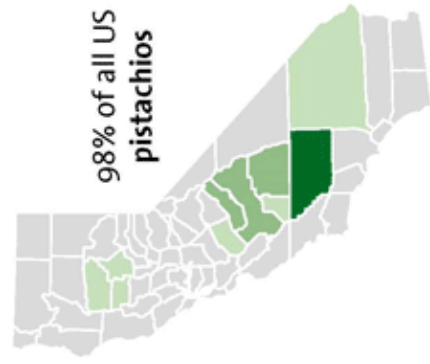
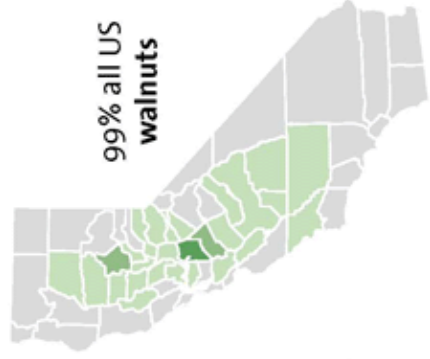
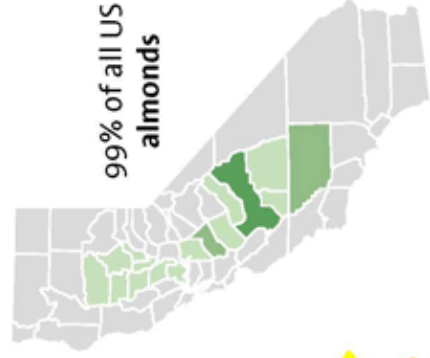
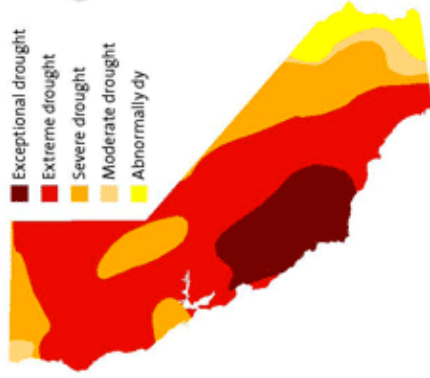
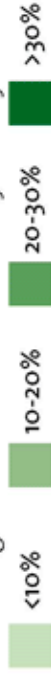
SOURCE: U.S. Drought Monitor

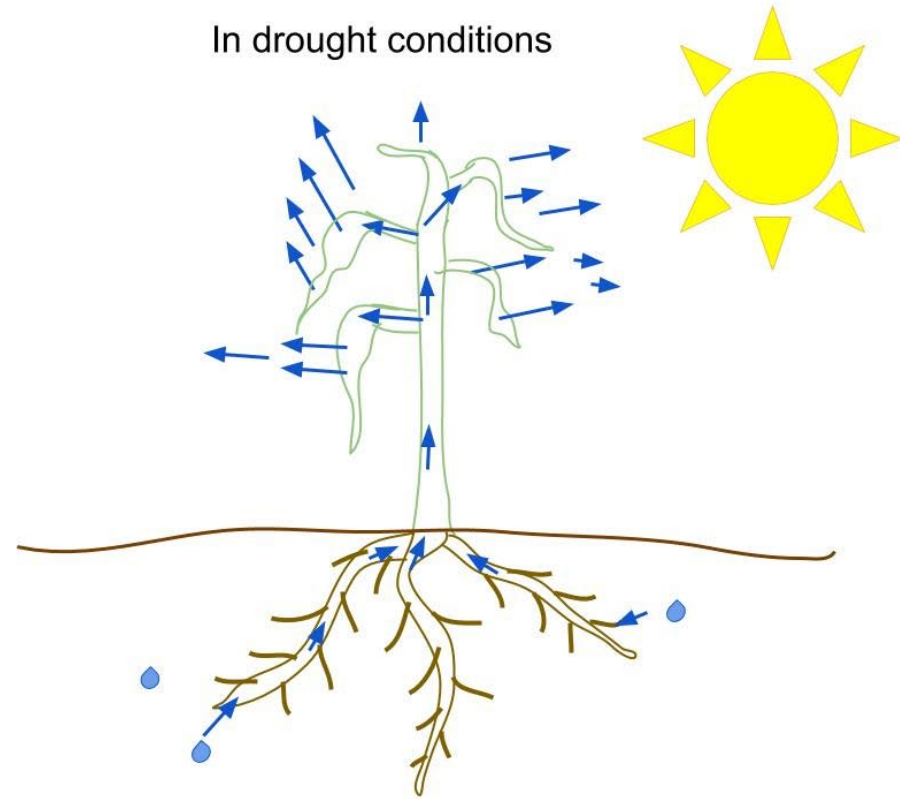
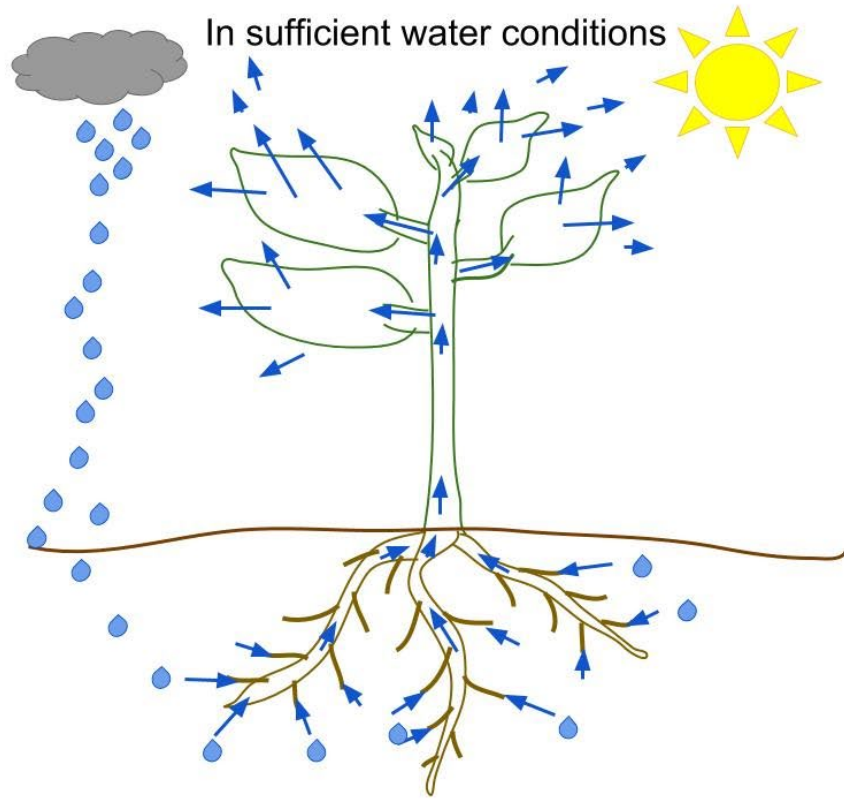
VISUAL NEWS

Where Does Your Food Come From?

California's drought affects the whole country's fruits, veggies, and nuts.

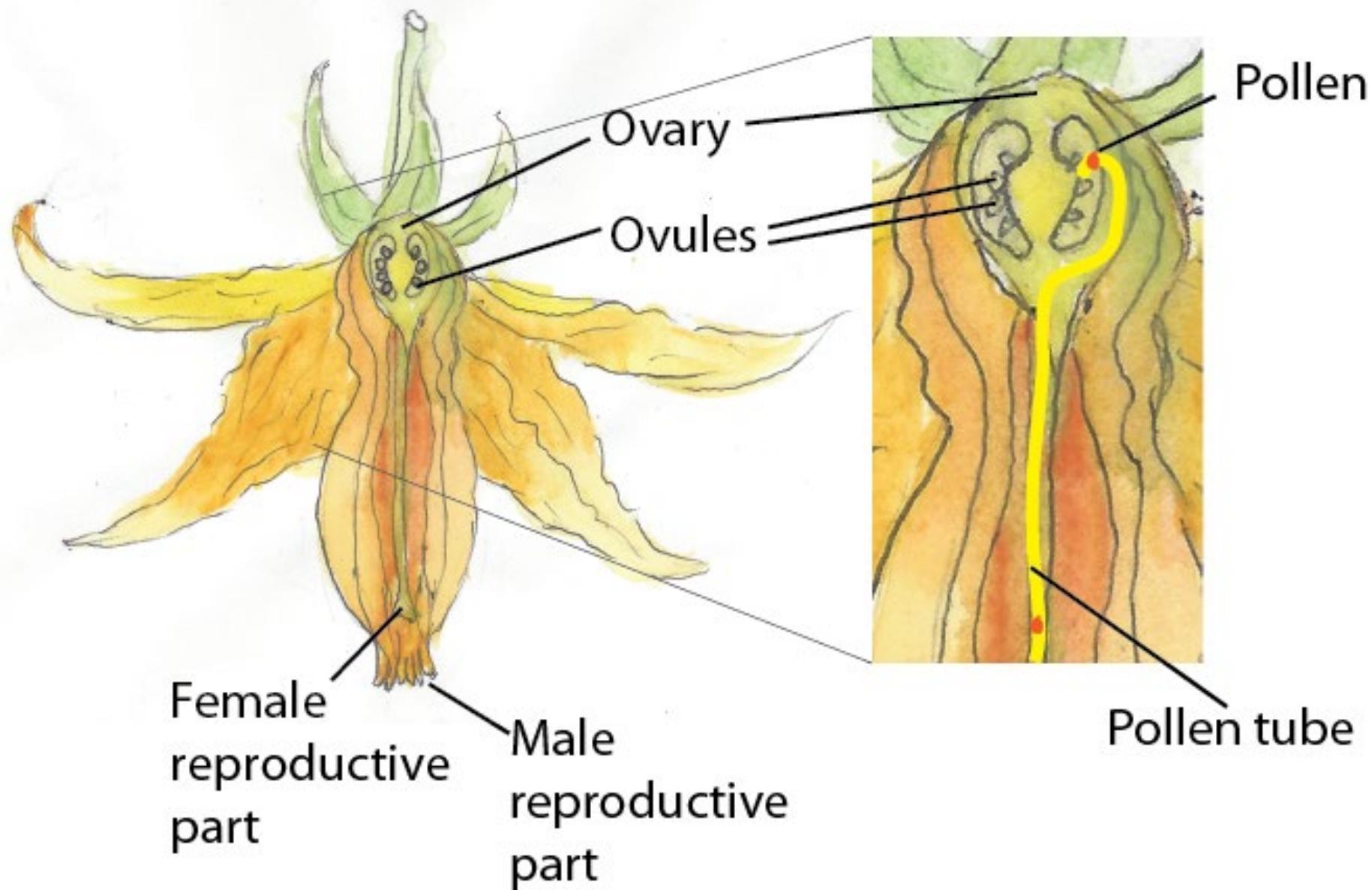
Percentage of Total US Production by County

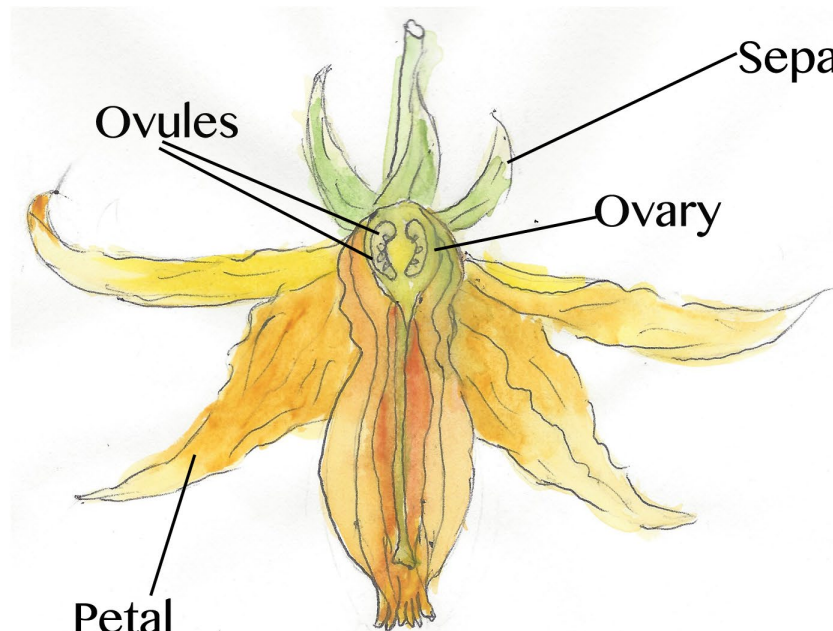




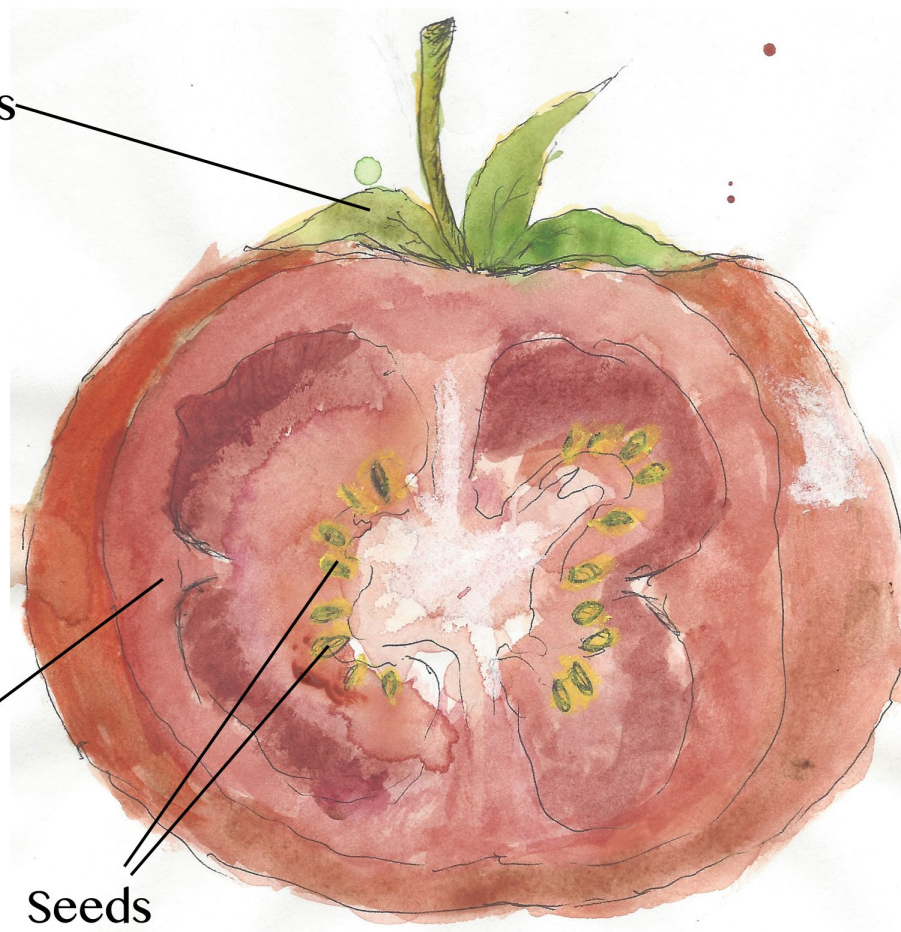








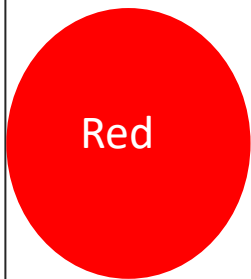
Flower (enlarged)



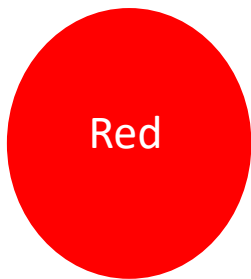
Fruit

Male parent

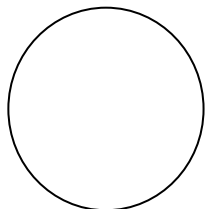
Female parent



--	--



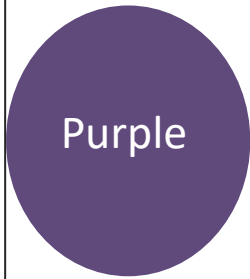
--	--



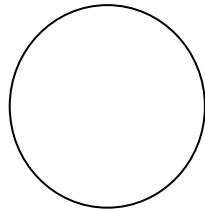
--	--

Male parent

Female parent



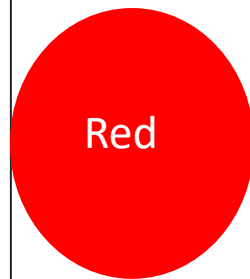
--	--



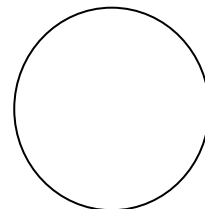
--	--

Male parent

Female parent



--	--



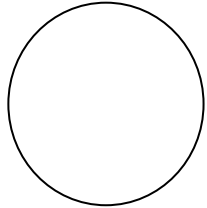
--	--

Male parent

Female parent

Branched
Roots

Branched
Roots

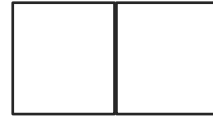
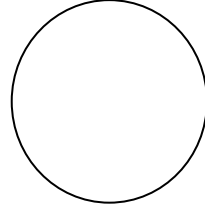


Male parent

Female parent

Extra-
branched
roots

Extra-
branched
roots

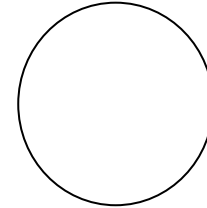


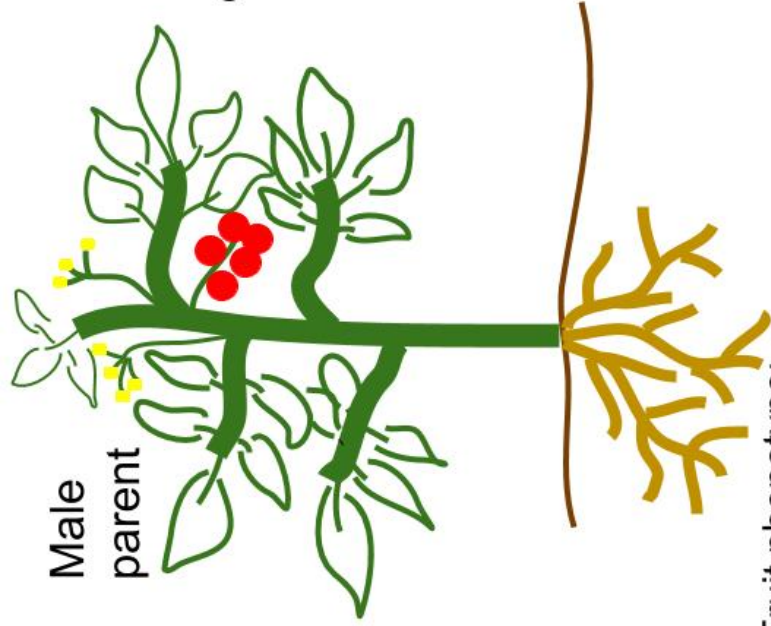
Male parent

Female parent

Branched
Roots

Extra-
branched
roots

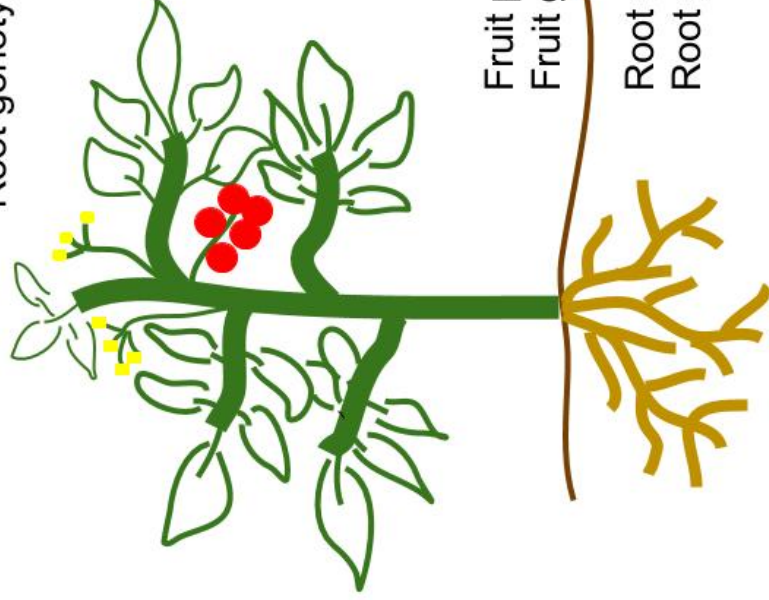




Fruit phenotype:
Fruit genotype:
Root phenotype:
Root genotype:



Fruit phenotype:
Fruit genotype:
Root phenotype:
Root genotype:



Fruit phenotype:
Fruit genotype:
Root phenotype:
Root genotype:

	RB	Rb	rB	rb
RB	RRBB Red fruit, branched roots	RRBb Red fruit, branched roots	RrBB Red fruit, branched roots	RrBb Red fruit, branched roots
Rb	RRBb Red fruit, branched roots	RRbb Red fruit, extra- branched roots	RrBb Red fruit, branched roots	Rrbb Red fruit, extra- branched roots
rB	RrBB Red fruit, branched roots	RrBb Red fruit, branched roots	rrBB Purple fruit, branched roots	rrBb Purple fruit, branched roots
rb	RrBb Red fruit, branched roots	Rrbb Red fruit, Extra- branched roots	rrBb Purple fruit, branched roots	rrbb Purple fruit, extra- branched roots

Purple Heinz



Indigo Rose



NPS Indigo



As of 2016, 8 GMO crops are currently grown in the US

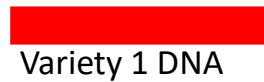
Crop	% GMO of total grown	Main Uses	Extra trait added by genetic modification
Corn	90%	corn oil, corn syrup, corn meal, corn starch; all also used in processed foods	Insect resistance, herbicide resistance
Soybean	95%	soybean oil, soy lecithin, soy protein; all also used in processed foods	Herbicide resistance
Cotton	95%	cottonseed oil, also used in processed foods	Insect resistance, herbicide resistance
Canola	90%	canola oil, also used in processed foods	Herbicide resistance
Sugar beets	90%	sugar, also used in processed foods	Herbicide resistance
Alfalfa	32%	animal feed	Herbicide resistance
Papaya	75%	eaten fresh	Virus resistance
Squash	12%	eaten fresh	Virus resistance

Selective Breeding

Tomato variety 1: Large, sweet, **red** fruit



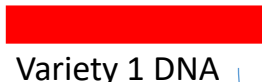
Tomato variety 2: small, sour, **purple** fruit



Cross



Backcross



Backcross



More back crosses

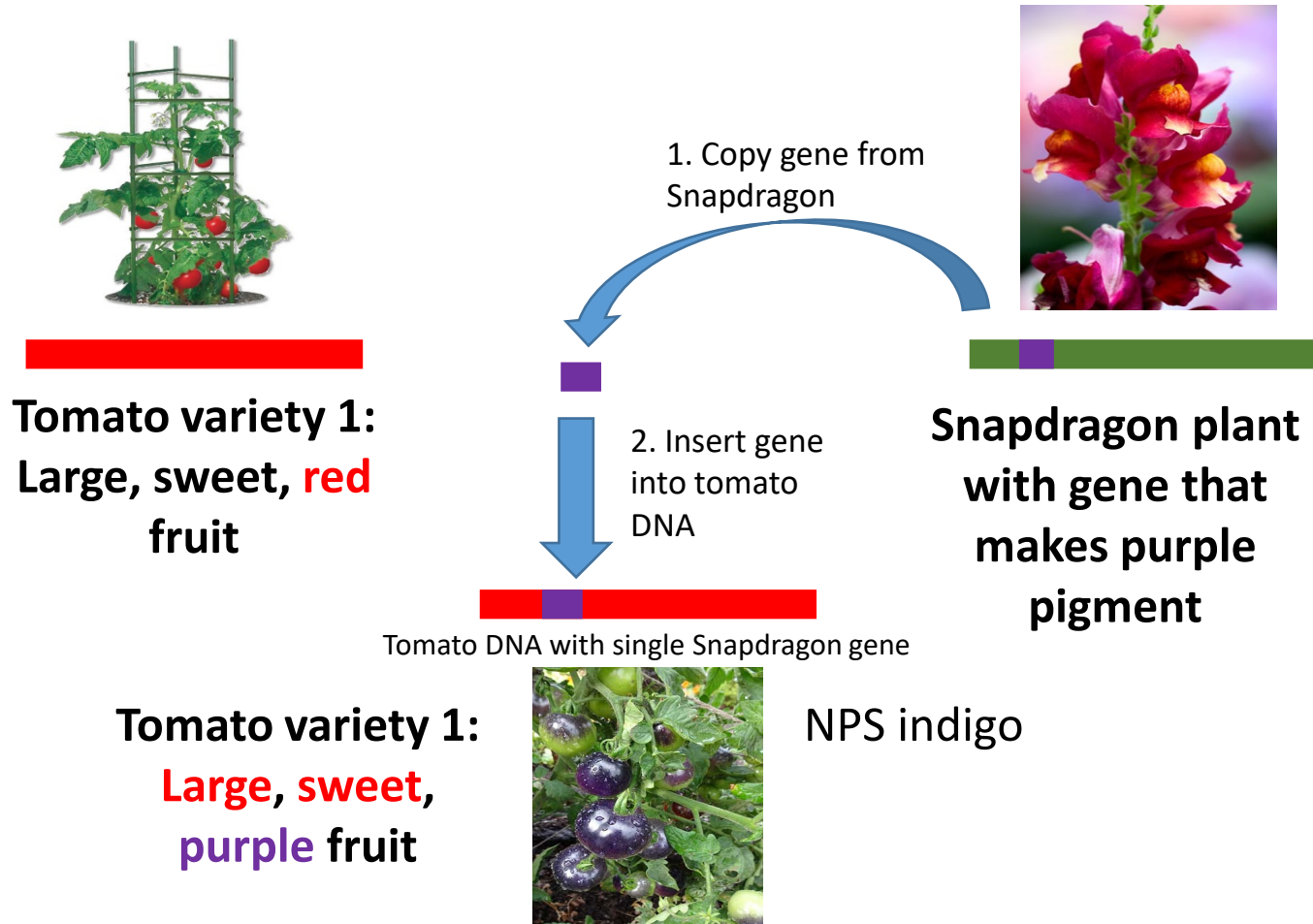


Indigo Rose:



After several generations: **large**, **sweet**, **purple** fruit

Genetic Modification



Many processed foods contain ingredients from GMO crops.



Which do you like to eat?