



Congratulations!!!

“The breeder’s art has been profoundly modified by discoveries within the past decade, yet we are only at the beginning of a new era...”

-W.J. Spillman, USDA / wheat breeder

The American Breeder’s Magazine, 1910, Vol. 1, No. 1, p. 69

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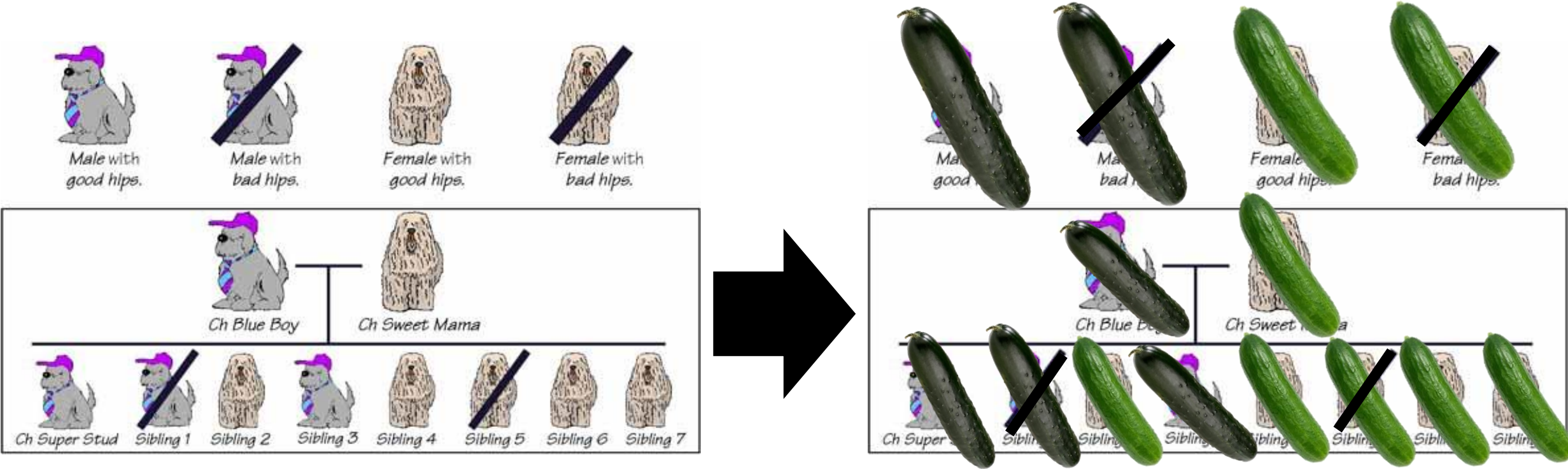
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Me on July 17, 2023.



“It’s like dog breeding, but for cucumbers!”



Plant Breeding Academy Welcomes Class VIII



PBA VIII Completes Week 3



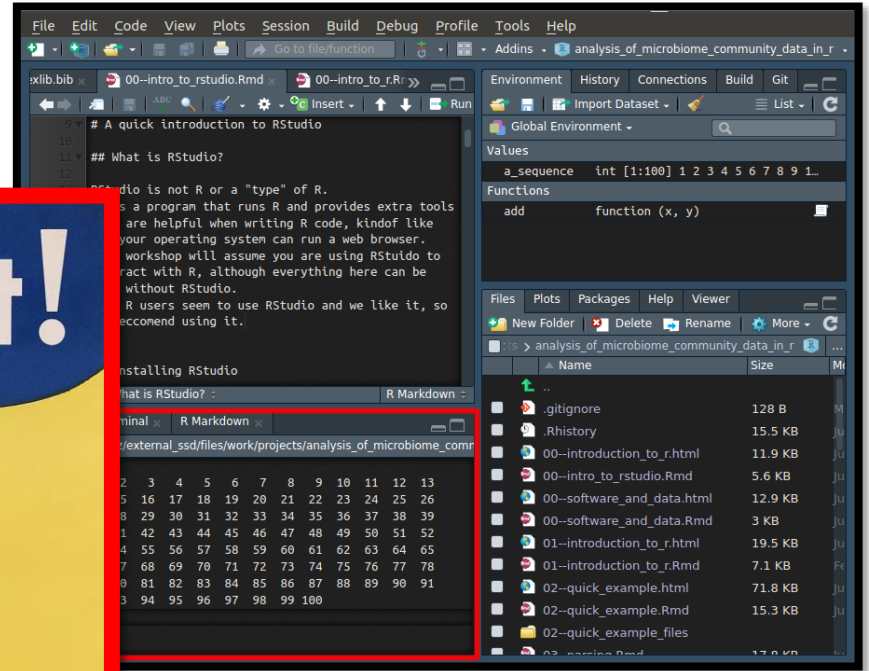
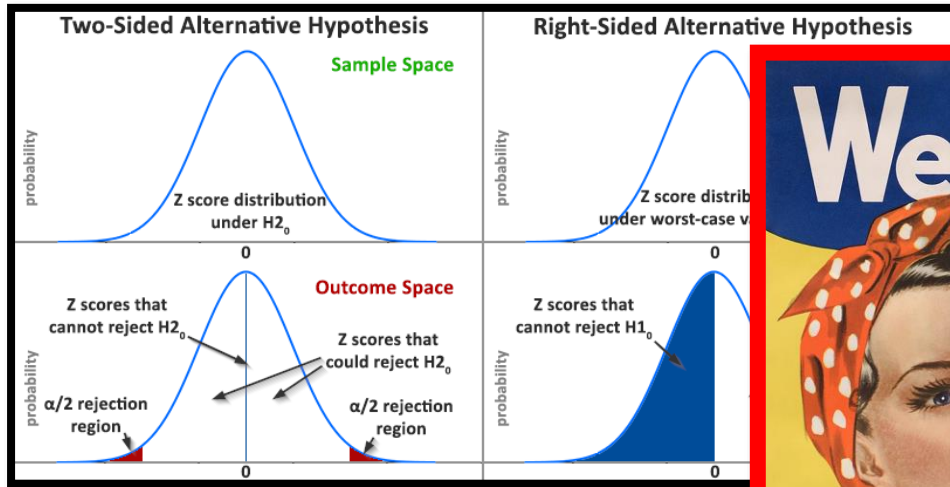
PBA VIII Completes Week 2



Seed Biotechnology Center at UC Davis
2,347 followers
4mo •

Shoutout to UC Davis Strawberry Breeding program and [Mitchell Feldmann](#) and [Glenn Cole](#) for hosting the UCD Plant Breeding Academy Class VIII students at the strawberry breeding fields last Friday! 🍓🌱 We're

The struggle was real but now we can do it!!!



3. What will be the disease reaction (R=resistant, S=Susceptible) in the considering gene-for-gene situation? (points = 18)

Variety	Pathotypes			
	$P_1P_2P_3P_4$	$P_1P_2P_3P_4$	$P_1P_2P_3P_4$	$P_1P_2P_3P_4$
$R_1R_2R_3R_4$	Xxxx (S)	Xxxx (S)	Xxxx (S)	Xxxx (S)
$r_1R_2R_3R_4$	Xxxx (S)	xYxx (R)	xYxx (R)	Xxxx (S)
$R_1r_2R_3R_4$	xxYx (R)	Xxxx (S)	xxYx (R)	Xxxx (S)

Susceptible reaction = S

xi = Host's R_i gene can recognize the pathogen, but for the corresponding pathogen is not recognizable.

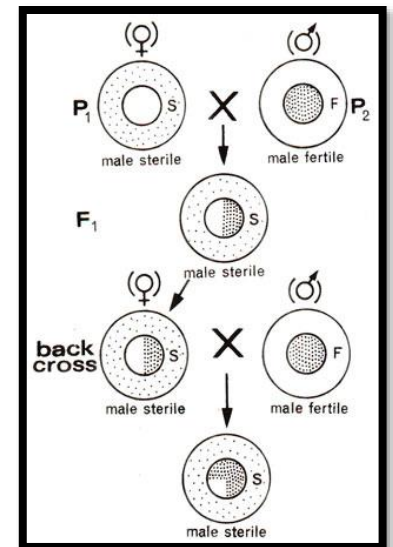
xi = Host's r_i gene can't recognize, and pathogen's p_i is also not recognizable.

xi = Host's R_i gene can't recognize though the pathogen's P_i gene is recognizable.

You need xxxx for all four gene pairs in order to get the susceptible reaction.

Resistant reaction = R

A host can recognize, and the pathogen is recognizable (RP) in any of the four gene pairs will give you resistance.



PBA “develops the skills and abilities of current industry personnel to enable them to become independent breeders or more valuable contributors to larger breeding programs.”

[Home](#)[Plant Breeding Academies >](#)[E-Series >](#)[Plant Breeding Careers](#)[News and Updates \(SBC\)](#)



Overview:

The **Seed Biotechnology Center at UC Davis** has pioneered the **Plant Breeding Academy**, a program designed and tailored for seed industry personnel. It provides a rare opportunity to develop talents within the Seed Industry. This Academy offers a unique curriculum that matches and exceeds the depth and breadth of a traditional Ph.D., as it is solely dedicated to the field of Plant Breeding and is taught by experienced plant breeders. This program specifically addresses the limited availability of trained plant breeders emerging from academic programs. Through initiatives like the UC Davis Plant Breeding Academy, seed associations such as ASTA, Euroseeds, and their member companies actively support a dynamic ecosystem that promotes ongoing learning, collaboration, and the relentless pursuit of excellence in the field of plant breeding. Since 2006, the UC Davis Plant Breeding Academy has graduated more than 400 students, making a significant contribution to driving innovation and meeting the evolving challenges of plant breeding. Over two years, participants engage in six immersive sessions in either Davis, California (USA) at UC Davis campus or around European countries with exterior visits of seed companies, research centers and collaborative programs.

Course goal: This course develops the skills and abilities of current industry personnel to enable them to become independent breeders or more valuable contributors to larger breeding programs.

Who should attend? The course is targeted toward personnel currently involved in plant breeding programs who lack the academic background in genetics theory and practice to advance as independent breeders. Current breeders who desire a refresher course or would like to broaden their expertise would also be potential participants.

Overview & Curriculum

PBA In Davis

PBA In Europe

PBA In Africa

Academy Participants



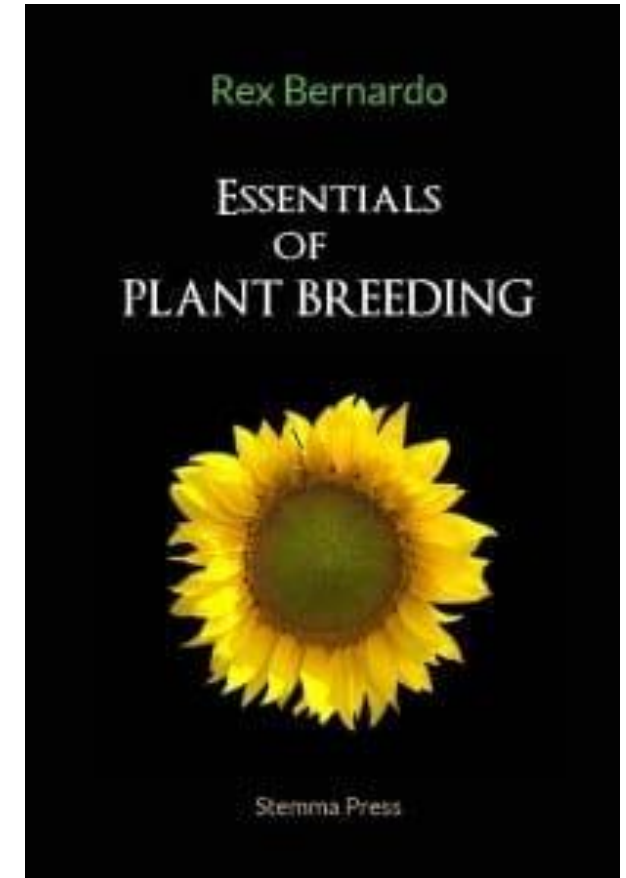
***Be an ambassador
for plant breeding!***



“A plant breeder’s work is fulfilling. There is much personal satisfaction in developing individual plants with unique gene combinations that have never existed before, and in sorting out which of the thousands of progeny can best meet human needs. Because humans ultimately depend on plants for their existence, plant breeders contribute to the well-being of society as a whole....

A plant breeder is partly a scientist, engineer, artist, and manager who uses his or her expertise, experience, and skills to create a cultivar.”

-Rex Bernardo, Essentials of Plant Breeding



Plant breeding is never a solo effort!



1.1.5

Basics of Statistics

Armstrong

Lab Assignment

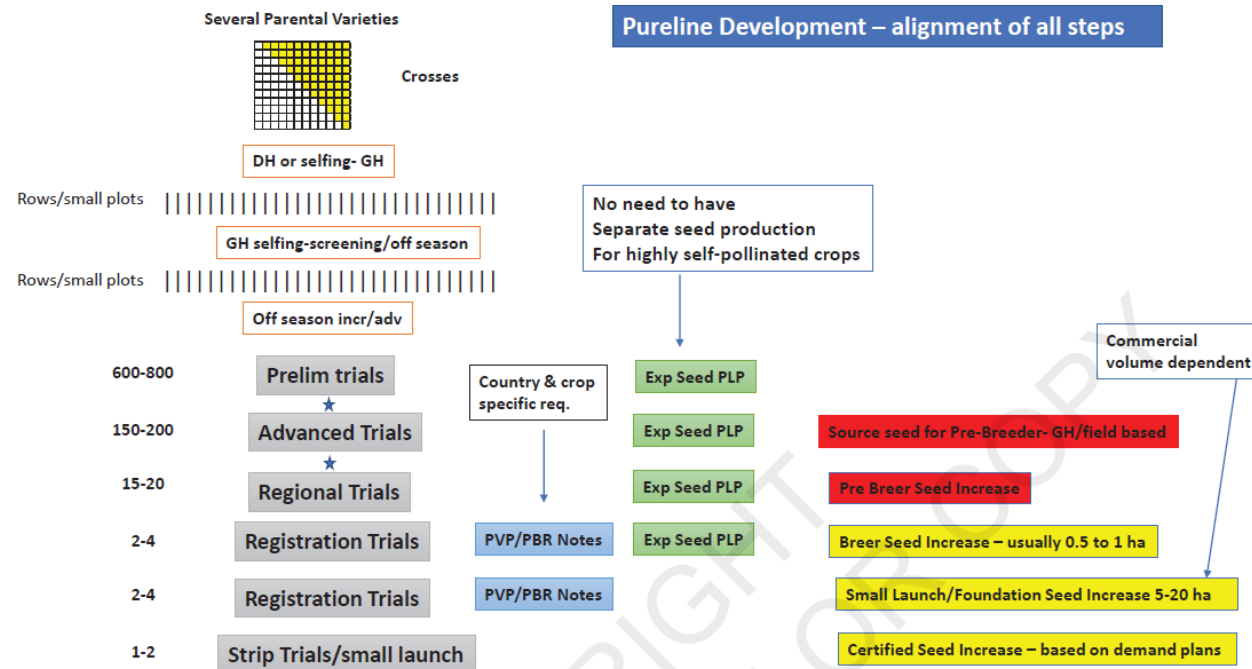
Download the Excel spreadsheet titled "Exercise 1.1.5 Basics" at the link below and follow the directions to clean and explore a dataset.

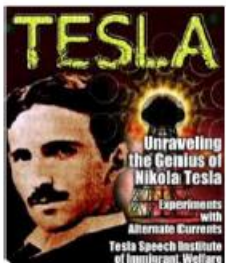
Link:

<https://app.box.com/s/jbf6qswghauoru77042y2bl8rncn8cf0>



2.5.6 Finishing Pure Lines and Hand-Off to Production Patel





Plant Breeding

“Art of Science” later “Art and Science”

and a “Business”!
and Leadership!



Science – grounded on Genetics

Art – subjective judgement, Breeder’s eye, the intuition, putting things together

Business – understanding seed business critical for Innovation



BSA using GBS for Pepper Fruit Length

Parent 1
NuMex Garnett

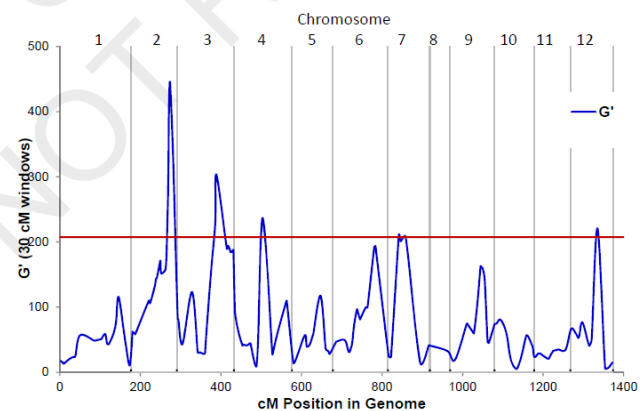
Parent 2
UCD-14

F2
population

Fruits are
segregating
in length

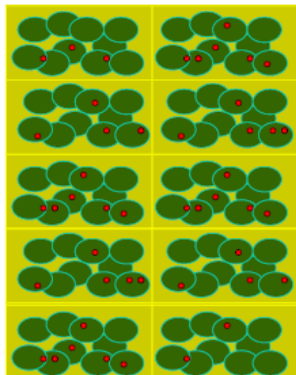


BSA using GBS - analysis using a G statistic

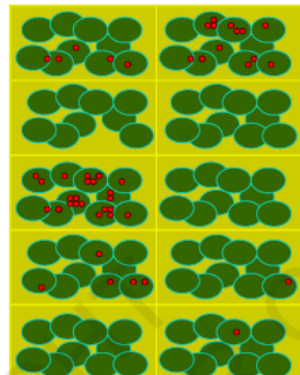


Seed Lots and Disease Distribution

THEORETICAL



"ACTUAL"

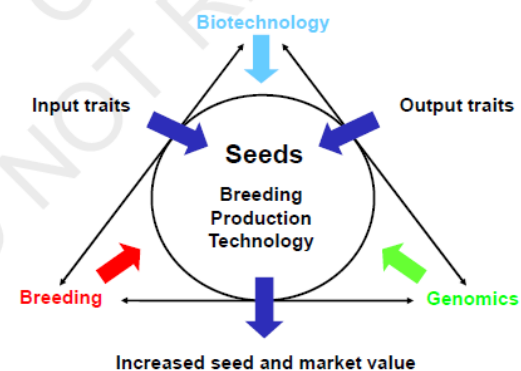


Disease incidence may not be uniform in all seed lots. Maintaining multiple lots until after testing can isolate sources of disease.

Illustration: Branko Lovic

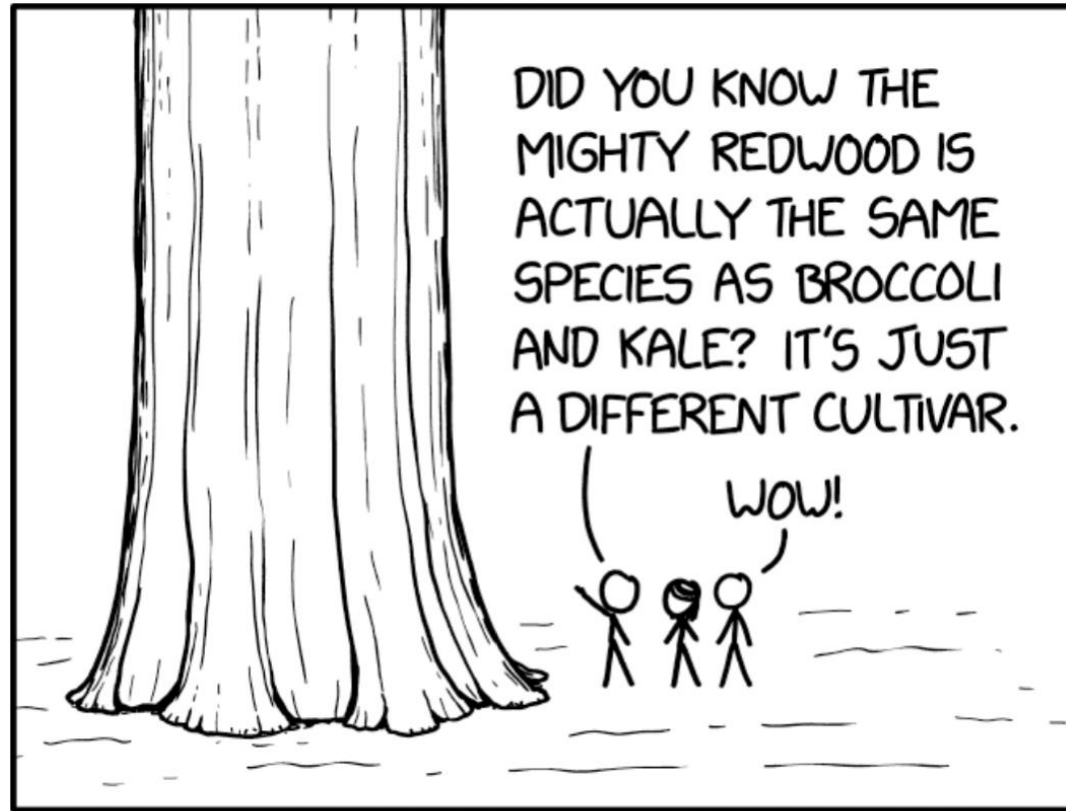


Seeds: A Delivery System for Plant Improvement









EVERY YEAR OR TWO, BOTANISTS ADD
ANOTHER PLANT TO *BRASSICA OLERACEA*
AND SEE IF ANYONE CALLS THEM ON IT.