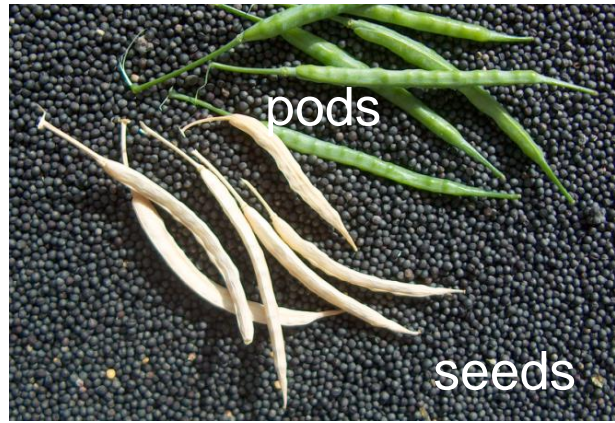




Born in Gent The InVigor Canola Success Story

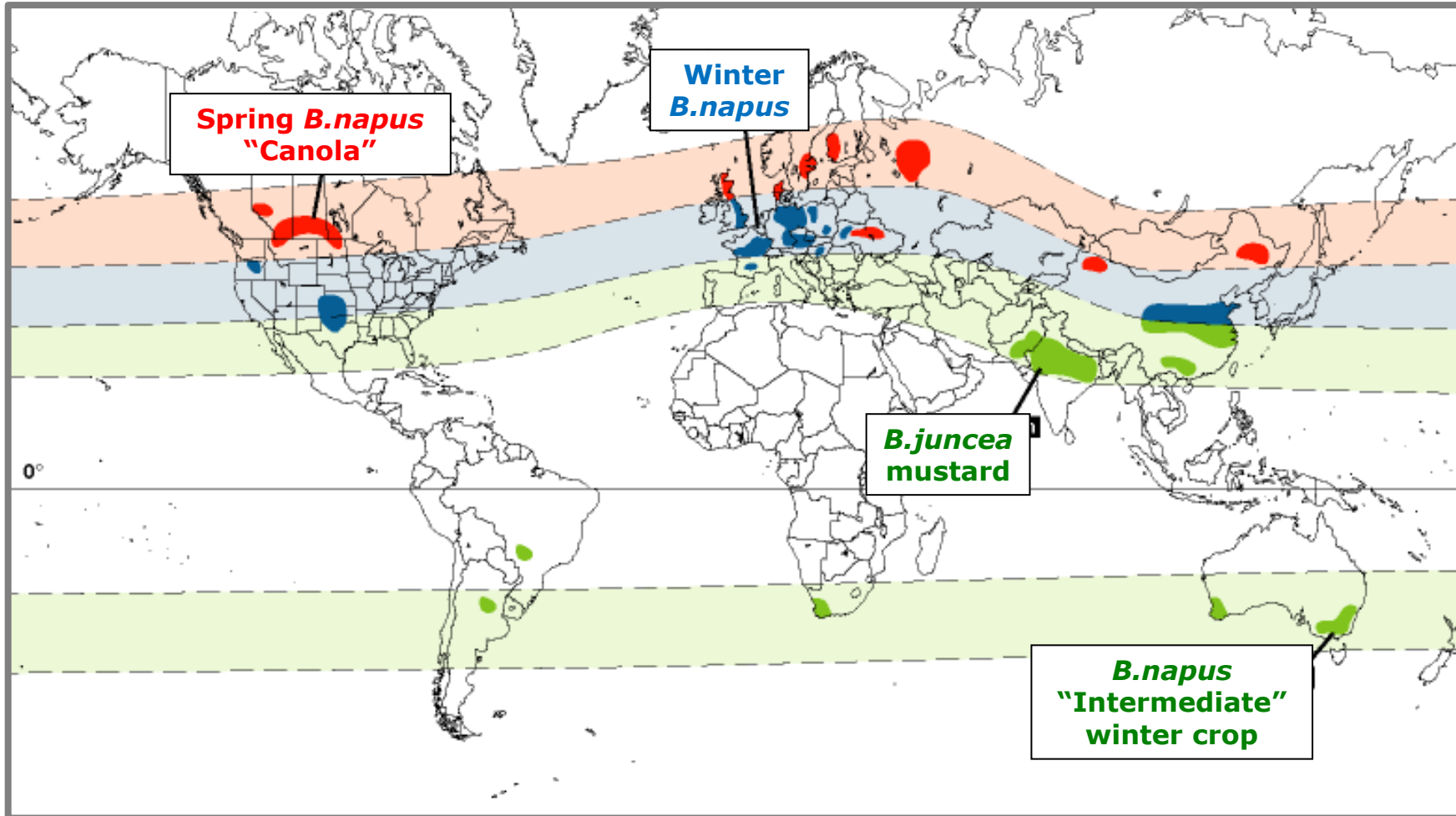
By Bart Lambert

Oilseed Rape is a Valuable Vegetable Oil Crop



OSR is Mainly Cultivated in the Northern Hemisphere

2 Species, 3 Types



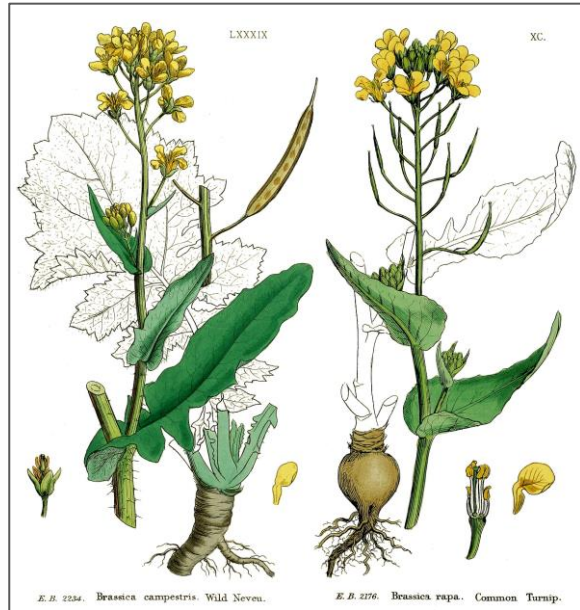
2021 acreage

www.indexmundi.com

36.2 Million ha globally

9.9	Canada + US
8.3	India
6.8	China
5.6	EU 27 + UK
3.0	Australia
1.6	Russia
1.0	Ukraine

From “Wild” Rapeseed to Canola-quality Varieties



Oilseed Brassica's


In ancient times
Lamp oil and lubricant



B.napus - Canola


First “00” variety in 1974 in Canada
Enabled food and feed use

The First Major Yield Enhancement Step happened in Gent



Prof. Van Montagu

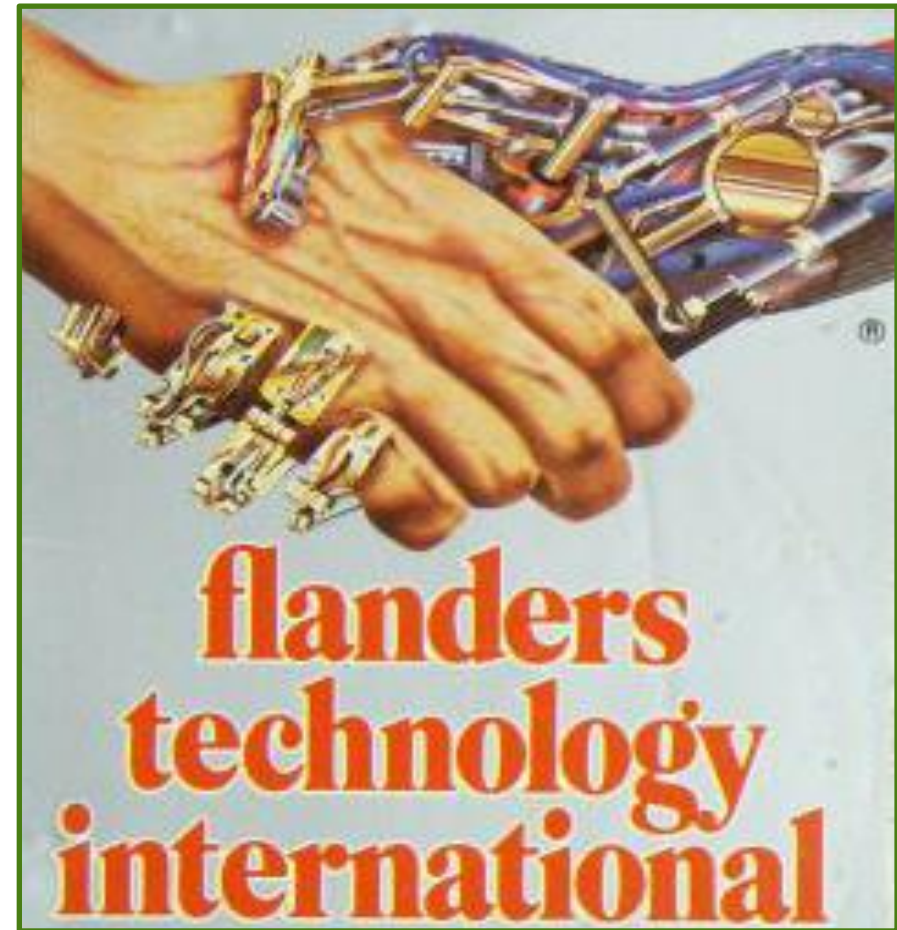
1982



PLANT GENETIC SYSTEMS

1986 - Insect resistance

1987 - Herbicide tolerance



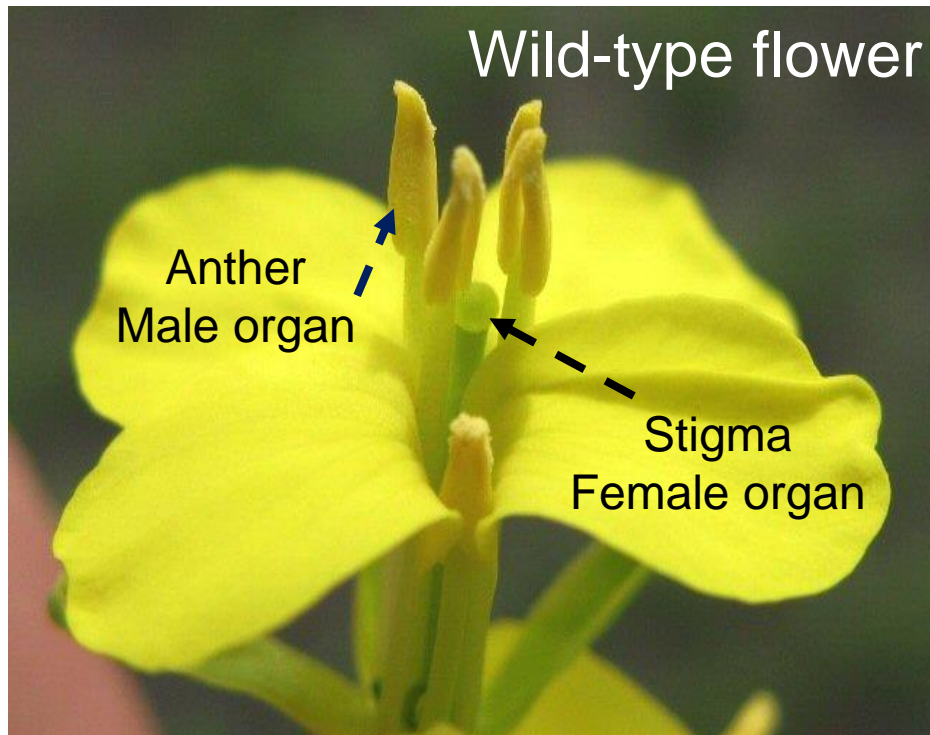
1989: The OSR



Hybridization System Invented

An ingenious combination of 3 bacterial genes providing male sterility, restoration and herbicide tolerance

UCLA Bob Goldberg
Molecular Biology Institute



The SeedLink® Hybridization System Enabled Canola Hybrids

Induction of male sterility in plants by a chimaeric ribonuclease gene

Celestina Mariani, Marc De Beuckeleer, Jessie Truettner, Jan Leemans & Robert B. Goldberg

Nature 347, 737-741 (1990)



First InVigor Hybrid Launched in Canada in 1997



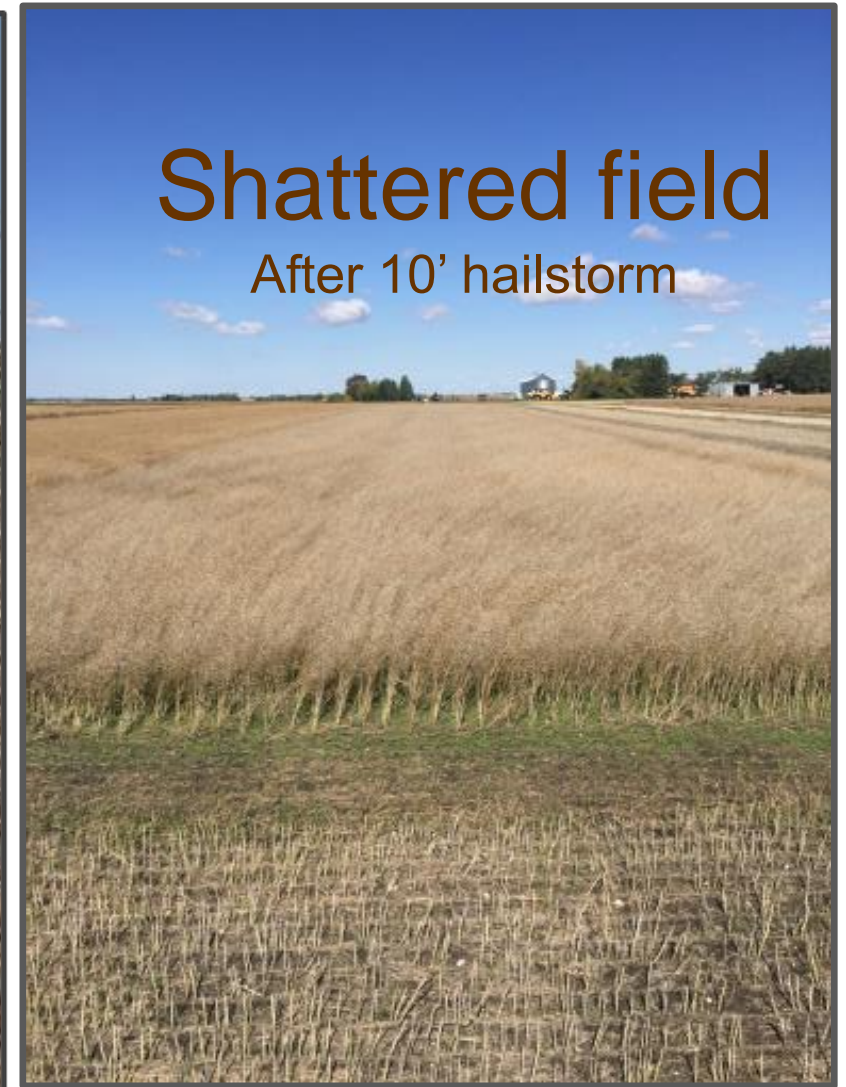
From Start-up to Global Player



InVigor® drives Crop Protection Products & Services



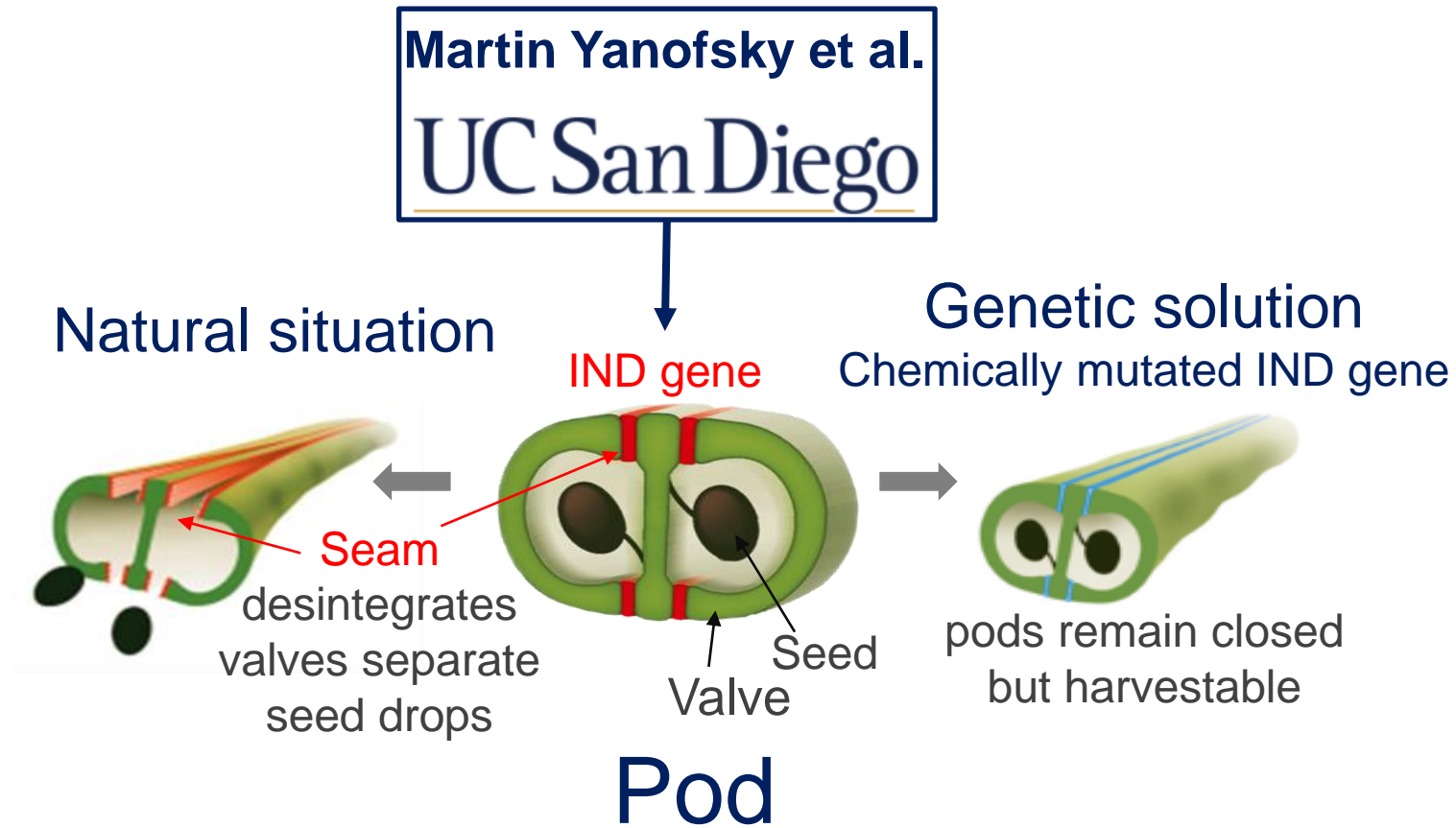
But there Was Still a Major Productivity Issue



Pod Shattering was Managed by a Two-Stage Harvesting Procedure



A Genetic Solution Solves Pod Shattering



14 Years to Create and Develop Pod Shatter Reduction

A textbook example of commercially successful biotech discovery and innovation

From Arabidopsis to Canola



Pod Shatter Reduction Provides Many Benefits

Productivity

Bigger seed

More seed

Minimize
seed loss

Less green
seed

Seed quality

More oil



Minimize stress

Skip swathing

Farmer convenience

Save input cost

Harvesting flexibility

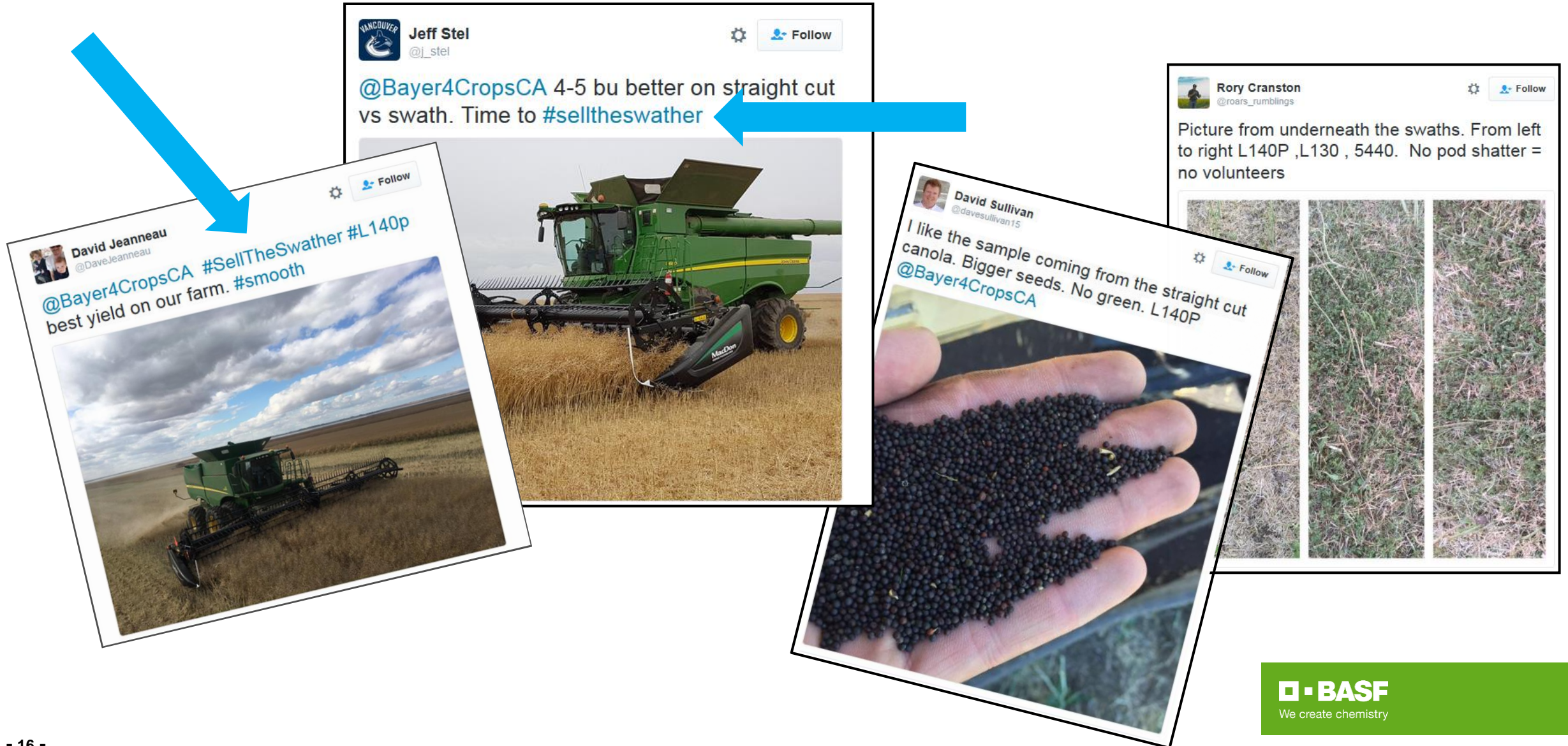
Less weedy volunteers next season

Reduced fuel
consumption

Less CO2
emission

Environment

Pod Shatter Reduction went viral on Social Media



Jeff Stel @j_stel
@Bayer4CropsCA 4-5 bu better on straight cut vs swath. Time to #selltheswather

David Jeanneau @DaveJeanneau
@Bayer4CropsCA #SellTheSwather #L140p best yield on our farm. #smooth

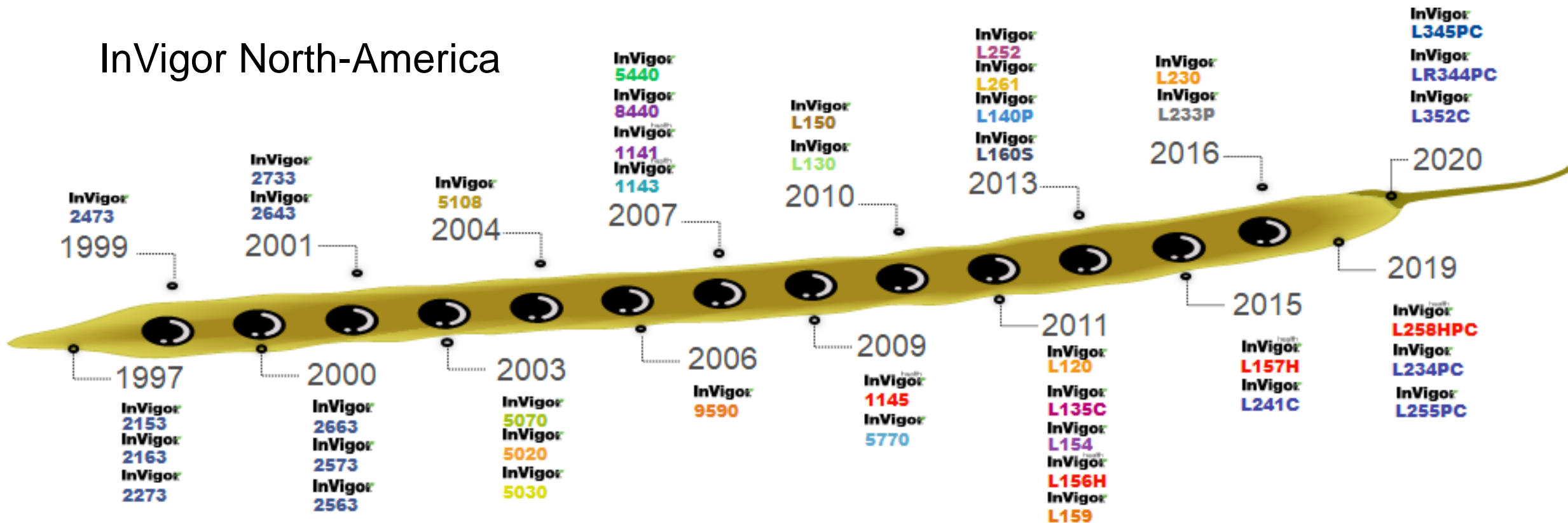
David Sullivan @davesullivan15
I like the sample coming from the straight cut canola. Bigger seeds. No green. L140P @Bayer4CropsCA

Rory Cranston @roars_rumblings
Picture from underneath the swaths. From left to right L140P ,L130 , 5440. No pod shatter = no volunteers

BASF
We create chemistry

Continuous Launch of New InVigor® Hybrids Drives the Seeds Business in North-America

InVigor North-America



2021
58000 km²

703000
km²
InVigor



162000
km²
PSR

InVigor

BASF
We create chemistry





We create chemistry