Rapeseed production and research in China

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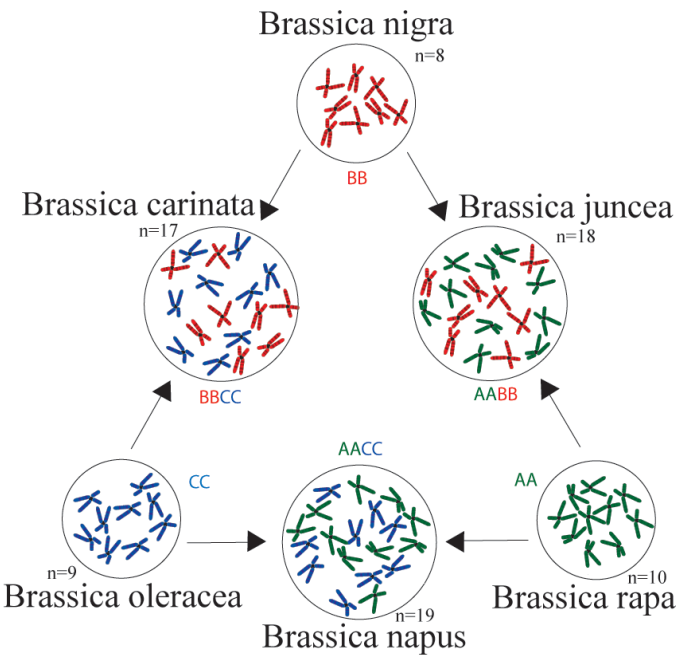
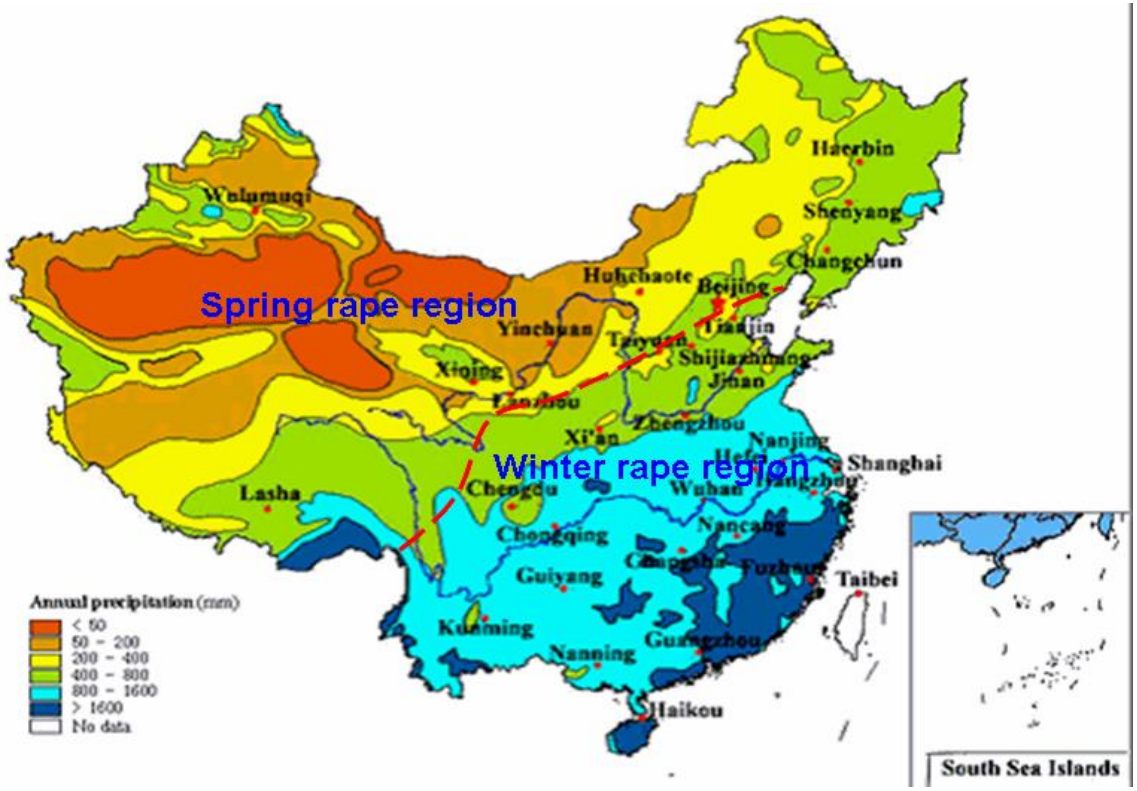
Distribution of rapeseed production in China

- **Oilseed brassicas cultivated for long history**
- ***B.napus*：the dominant cultivation species**
- **Two eco-types: winter- and spring-rapeseed**
- **#1 oil crops in China**





Rapeseed breeding and production in China

Years	Hybrid (%)	Yield/mu (kg)	Area (M hectares)	Production (M tons)
1950s	0	30.9	1.936	0.8855
1960s	0	31.9	1.731	0.8332
1970s	0	43.5	2.127	1.387
1980s	10-15	77.2	4.246	4.899
1990s	20-40	88.8	6.249	8.321
2000s	50-70	114.7	6.9	11.82
2010-13	>70	123.4	7.4	13.74

Date source：National Bureau of Statistics of China

1 hectare=2.47 acres

1 acre=6 mu

Yield and oil content of new cultivars increase steadily

Year	Number of cultivars	Yield/mu (kg)	C22:1 (%)	Glucosinolate （μmol/g）	Oil （%）
2001-2003	31	166.1	4.52	48.47	41.01
2004-2006	58	162.4	0.46	23.99	41.26
2007-2010	113	178.0	0.19	23.15	43.15
2011-2014	78	186.2	0.22	22.06	44.19

Data collected from registered cultivars released by National variety Registration Committee

Major challenges we face

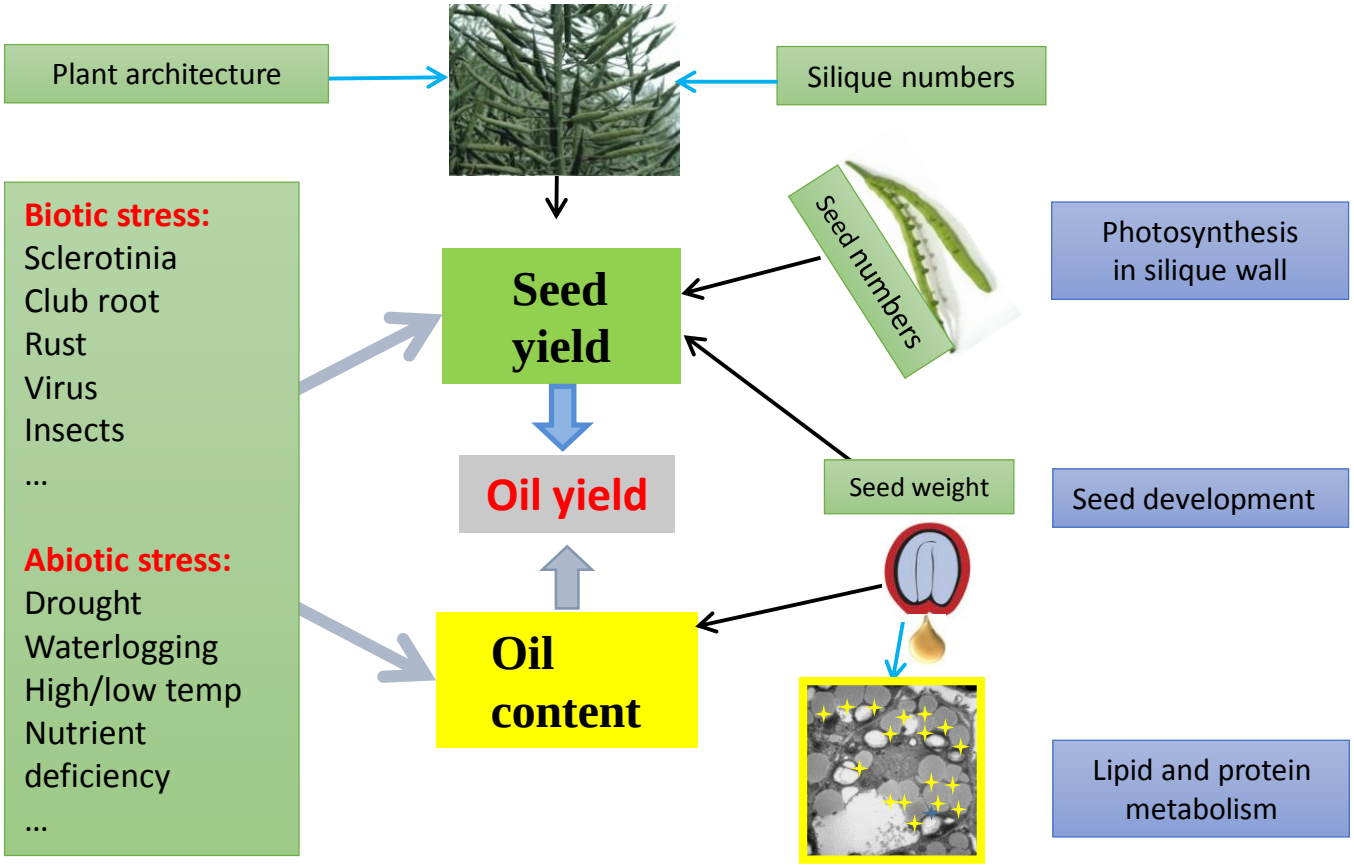
Rapeseed growth area decreases: low profit:

- Low mechanization rate and require a lot of labor
- High input including labor, seed, fertilizer and pesticide
- Imported soybean, palm oil and rapeseed are more competitive

Rapeseed breeding and research:

- Yield and oil content need to be improved
- Plant architecture not suitable for machine harvesting and high-density planting
- Biotic and abiotic stresses get more severe
- Excess usage of fertilizer and pesticide-environmental pollution
- Rotation with other crops-long growth period

Genetic improvement of Rapeseed



- **High yield：heterosis utilization, seed yield and oil content**
- **Stress tolerance：biotic and abiotic stress, G×E**
- **High efficiency：nutrient utilization and mechanization**

Potential priority collaboration on Rapeseed breeding and research

1. Rapeseed germplasm

- Exchange ad sharing of germplasms
- Generation of new germplasms
- Evaluation of germplasms

2. Functional genomics

- Genome wide identification of important genes
- Genome wide selection for breeding
- Molecular Breeding and marker-assisted selection

3. Mechanization for rapeseed in China

4. Exchange of scientists and graduate students

Thank you for your attention!