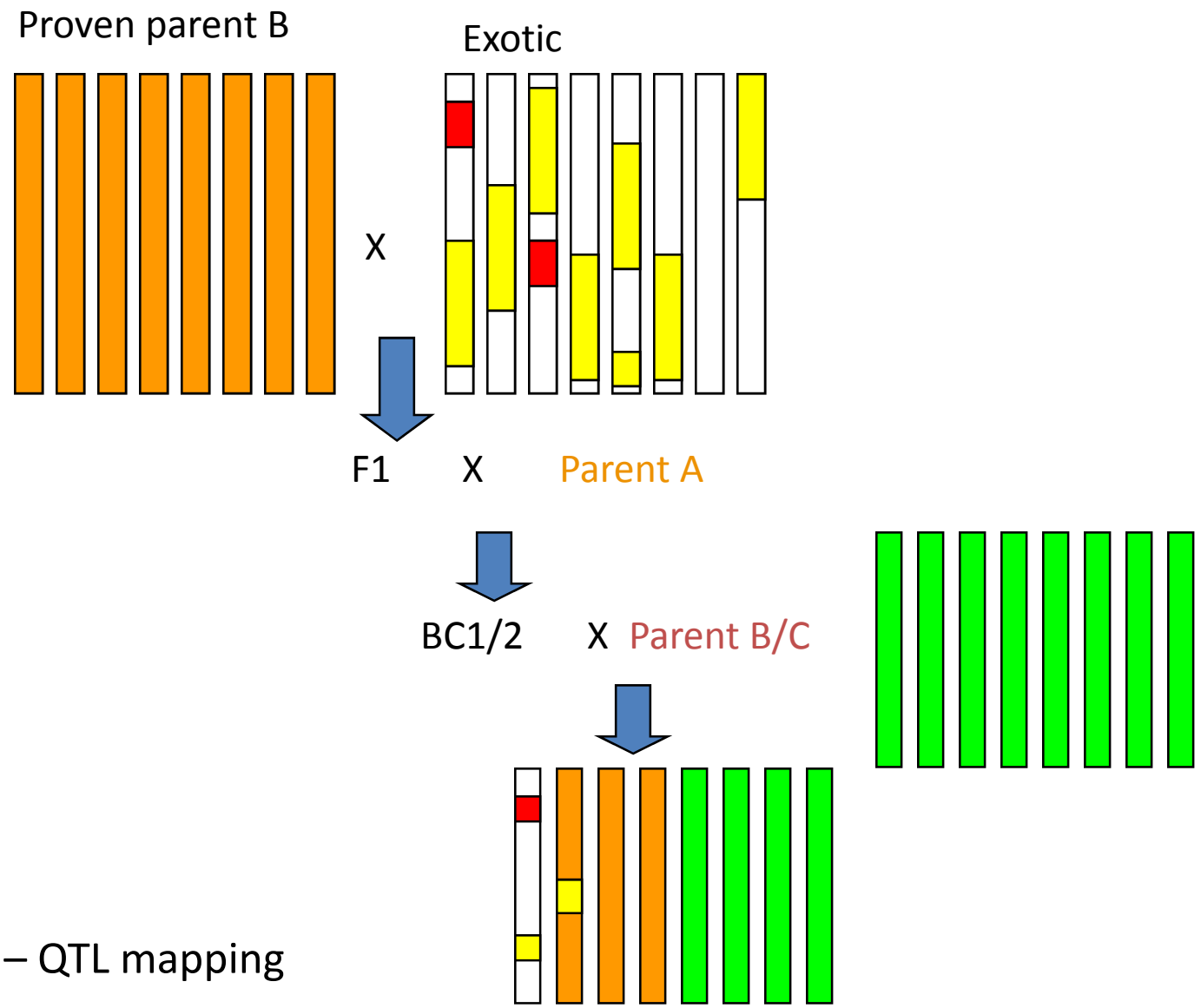
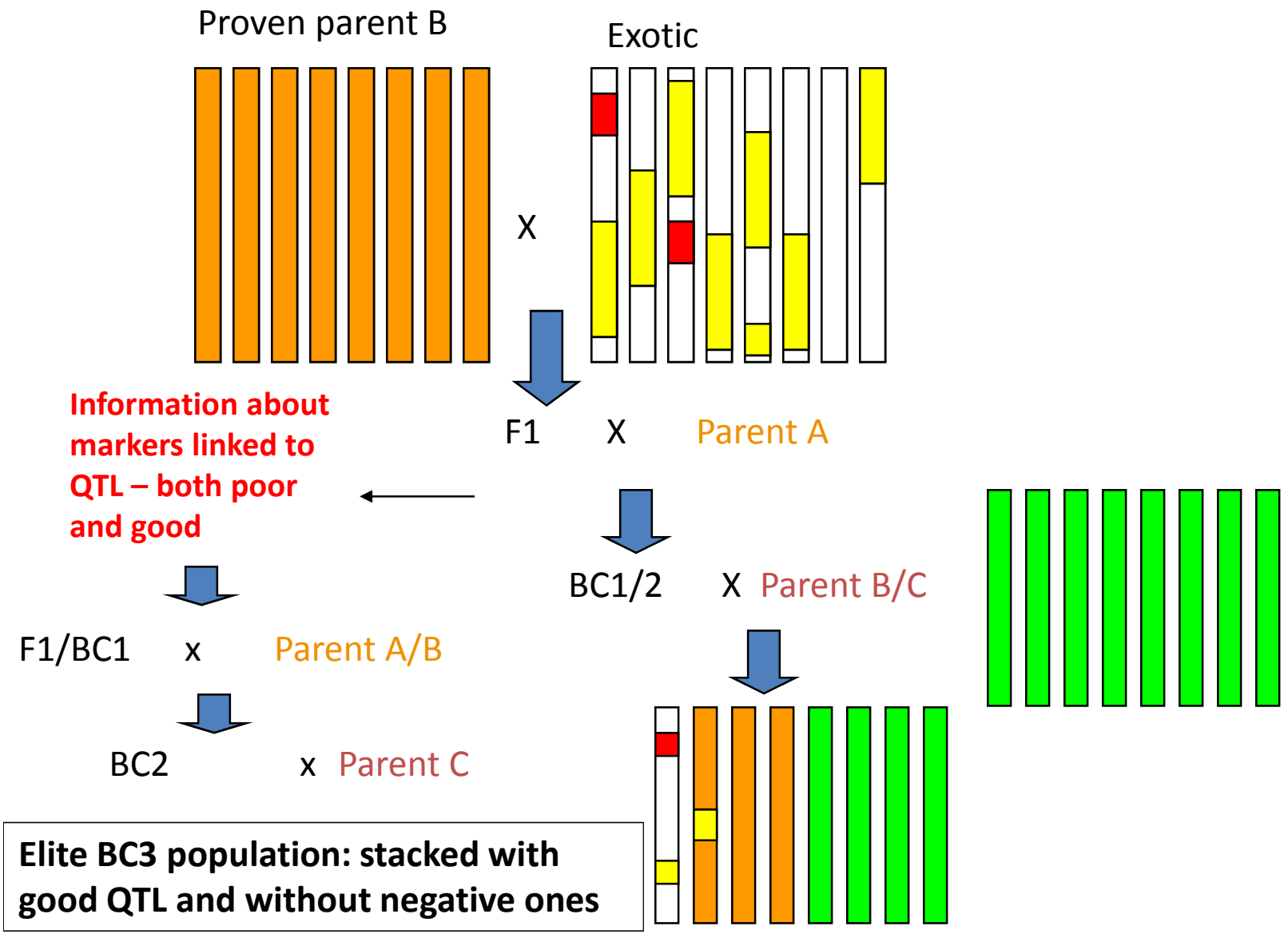
Reflection on some experience in Australia

- 1950's/60's – CSR Ltd (Roach *et al*) – had concerns about small number of ancestors
- Major effort started in 1960's - introgress *S. spontaneum* ; but not a lot of commercial success – exception was *S. spont*. clone **Mandalay** (from Burma) producing parent QN66-2008 which led to many important cultivars (by BSES)
- CSR discontinued efforts in 1990 – because while some "near commercial" clones were produced, commercial success rate was too low, and better chances with just commercial x commercial
- "Reappraisal" by CSIRO/BSES around 2000:
  - To just pursue "conventional" breeding and selection – would likely be an "up hill battle" like in the past
  - Thinking that DNA markers could contribute
  - New program commenced in partnership with Chinese programs
- Outstanding yields in early stages but less so in later stages (competition?)
- AFLP markers were hard work – but results supported marker strategy
  - More efficient markers today than AFLP's



BC3 – QTL mapping


Proven parent B
Exotic
X
F1
X
Parent A
Information about markers linked to QTL – both poor and good
BC1/2
X
Parent B/C
F1/BC1
x
Parent A/B
BC2
x
Parent C
Elite BC3 population: stacked with good QTL and without negative ones

Questions:

1. Is using the traditional approach relying too much on luck?
2. Multiple backcrosses needed to regain good sugar, but each backcross cycle means more loss of wild genome - is there a role for markers?
3. Is there benefits from a multi-nation consortium to develop elite parents from wild germplasm?

Is there scope for better cooperation in introgression breeding?

- For a single country – high cost, high risk, for small market
- For consortium of countries – less cost per output
- Is an organisation like ICSB funding a parental development program a potential arrangement?