

# Di-Hybrid Crosses

## Crosses With 2 Traits

### Until Now

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- We have been crossing organisms with only 1 trait (height or flower colour)
- These are called mono-hybrid crosses (mono = 1)
- You can cross 2 traits at the same time (called a di-hybrid cross)

[https://www.youtube.com/watch?v=bkk\\_\\_-2G2Zw](https://www.youtube.com/watch?v=bkk__-2G2Zw)



## Genotypes for different Labs

Black  
BBEE  
BBEe  
BBee  
bbEE  
bbEe

Chocolate  
bbEE  
bbEe

Yellow  
bb ee  
Bb ee  
BB ee



Determine the ratio of the offsprings of a cross between these 2 labs

$BbEe$  x  $bbEe$   
 ↓                      ↓  
 black                brown

	$BE$	$Be$	$bE$	$be$
$bE$	$BbEe$	$BbEe$	$bbEe$	$bbEe$
$be$	$BbEe$	$Bbee$	$bbEe$	$bbEe$
$bE$	$BbEe$	$BbEe$	$bbEe$	$bbEe$
$be$	$BbEe$	$Bbee$	$bbEe$	$bbEe$

Black → 6

Brown → 6

Yellow → 4

## Test Cross

- A test cross is often used by breeders to determine if an animal has a recessive allele that the breeder may not want passed on
- to do this they breed or cross the animal they want tested with an animal that has the recessive trait.
- if some of the offspring end up with the recessive trait the breeder knows that the animal he bred has the recessive allele.

Small paws are recessive in labs

$pp$

So the breeder would cross this dog with an unknown genotype to see what the  $F_1$  would look like.

