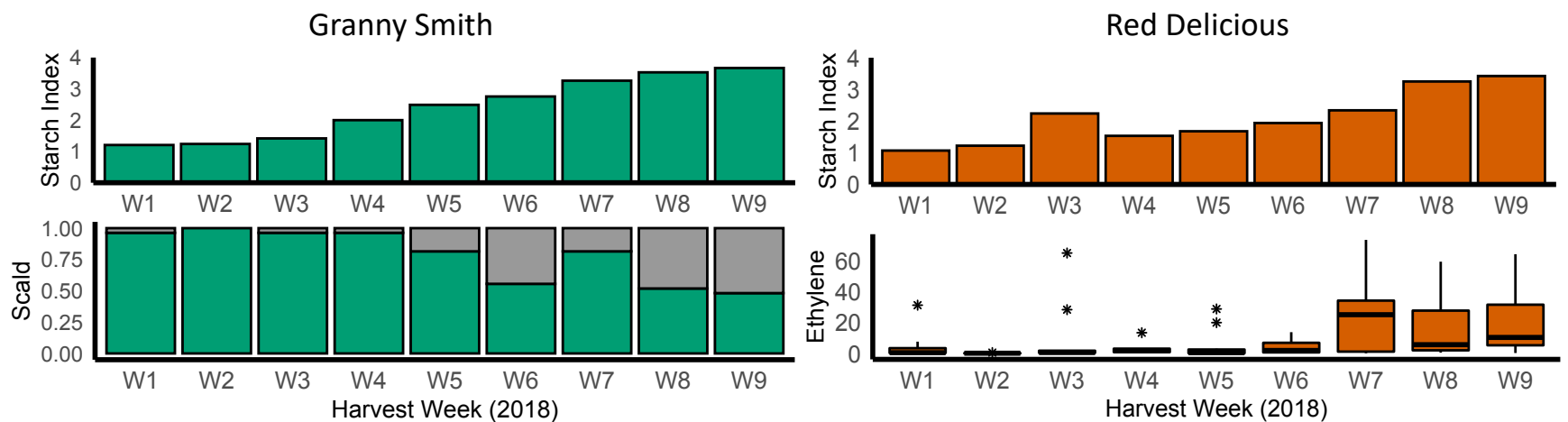


Apple maturity genes

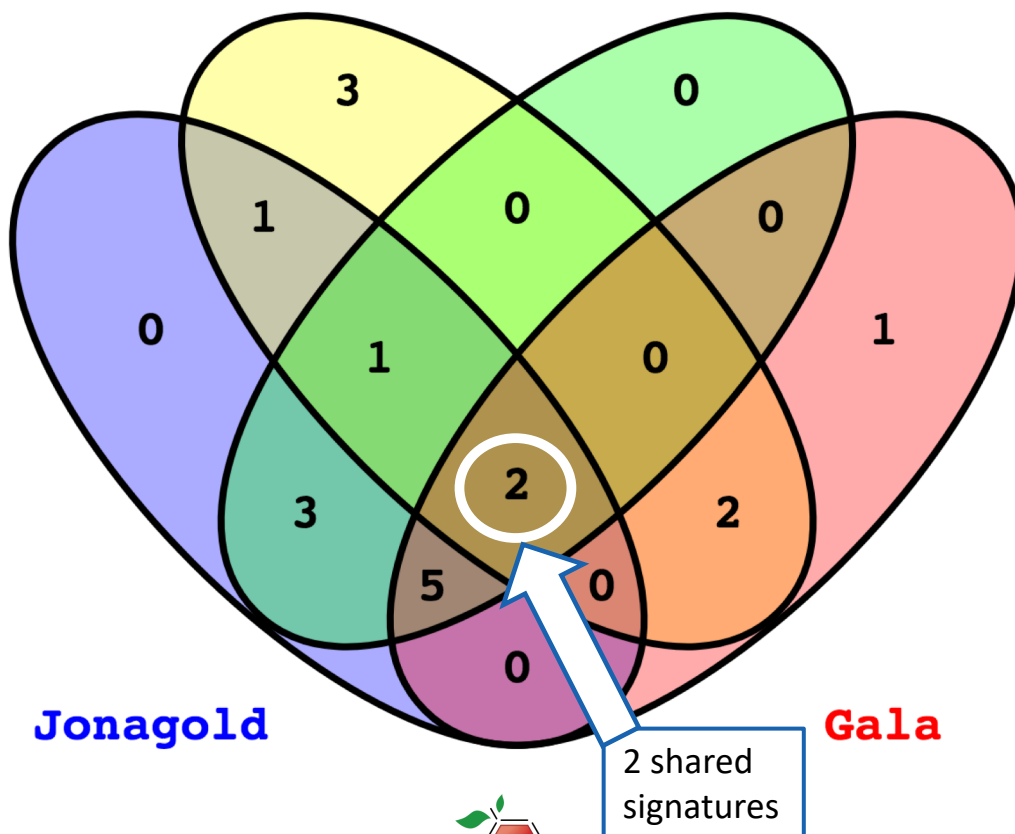
Gene activity changes that precede and accompany maturation might be useful as maturity indices. These changes might be developed into indices that can be tracked using biomarkers, and would work in many cultivars, especially ones new to the market.

Goal: Find gene activity signatures that precede and accompany changes in apple fruit maturity to build a list of potential maturity biomarkers

Approach: Track changes in gene activity spanning commercial harvest dates. Block 5 is ideal because it has 4 cultivars intercropped in the same location. This allows us to control for confounding environmental factors that impact current maturity indices.



Golden Delicious Granny Smith



Comparative Genomics

This approach compares patterns of gene activity across multiple cultivars.

In this simplified example, each cultivar has ~10 gene groups with activity that is correlated with changes in maturity. Many are cultivar specific, but 2 are shared. We may be able to find **genes** that could track changes in maturity across multiple cultivars – creating universal *Malus* maturity indices.

Extramural support:



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