Phenological data set of five taxonomic groups and agrarian activities in temperate climate: trends (and influencing factors*), Latvian case study

* Delay due to Sars cov 2

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Phenological data digitization

- > 47 000 observations;
- 148 phenological phases;
- period: 1970-2018

Data quality control

- Outliers identification;
- Phase order control

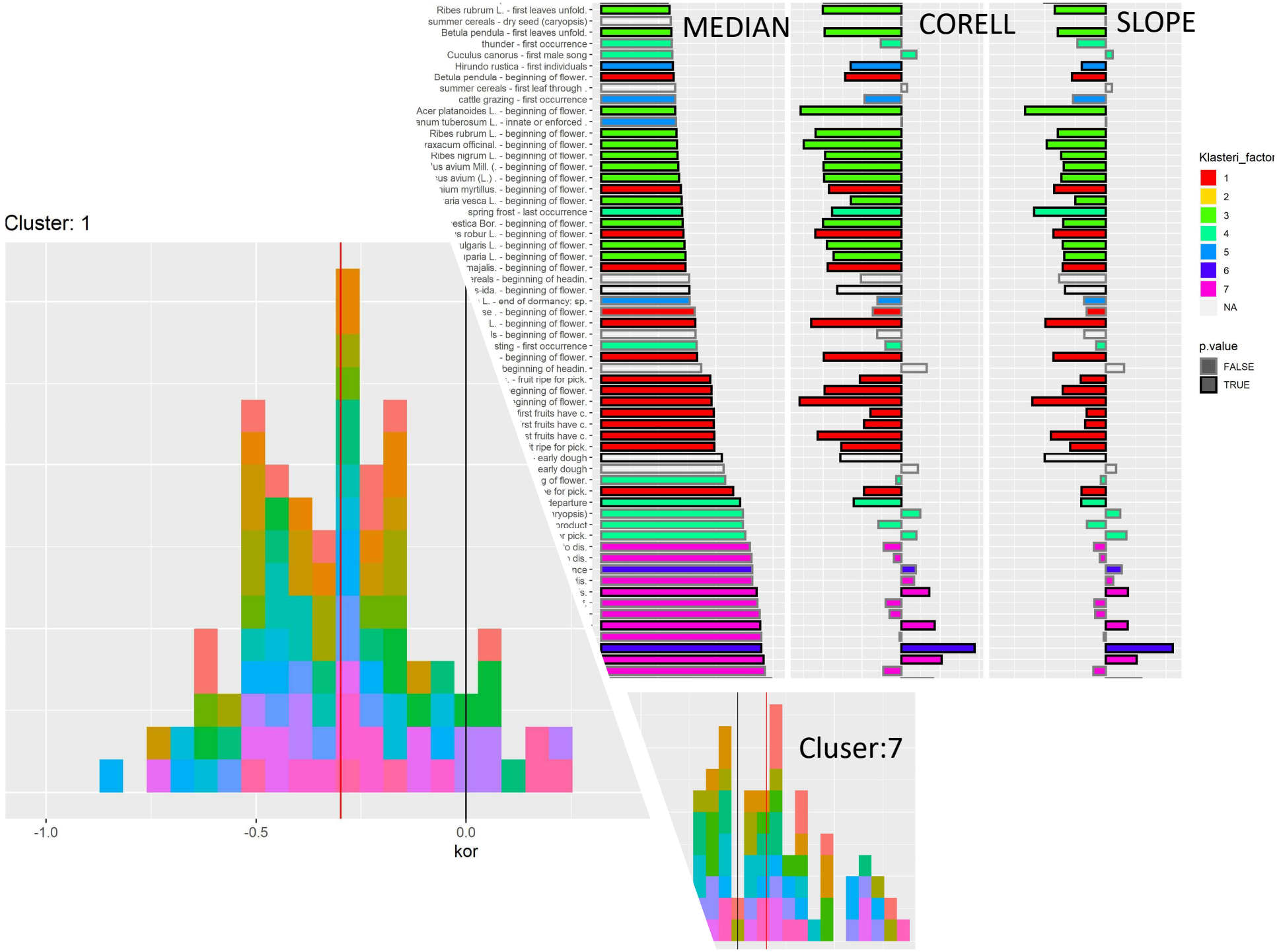
Multivariate analysis

- Cluster analysis → 7 clusters
- PCA (principal component analysis)

Trend analysis

- Long time series

Cluster analysis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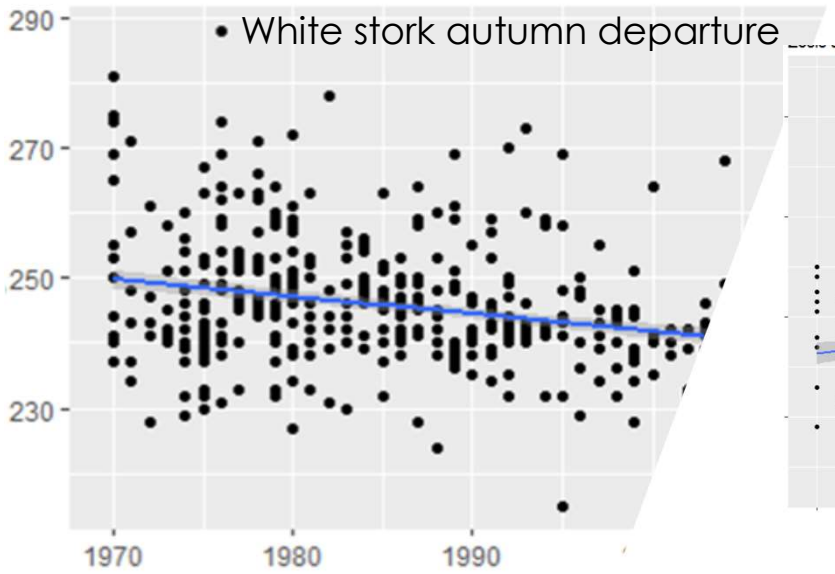
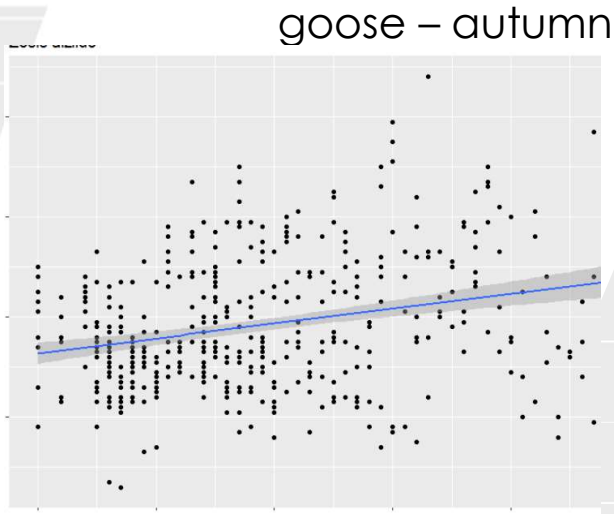
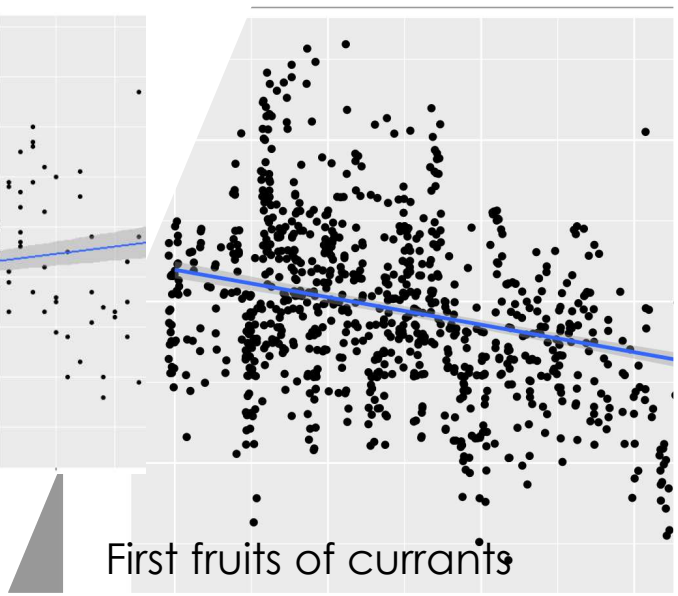
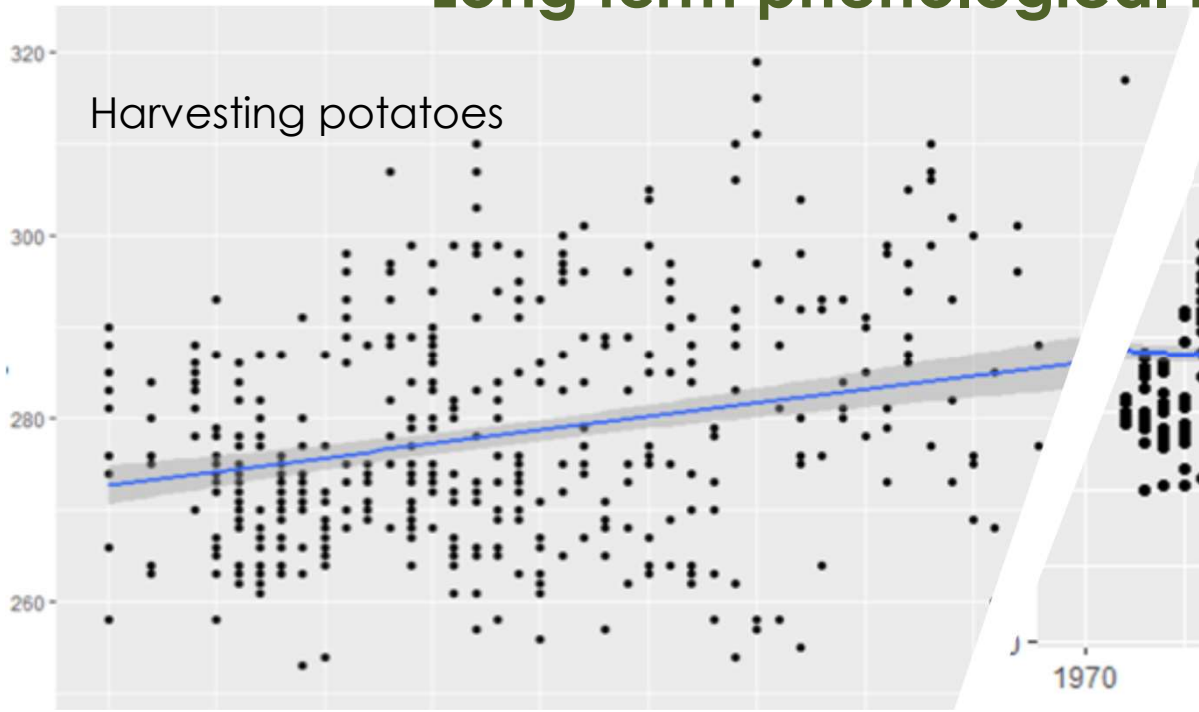
Cluster #	Trends	
1. Late spring and summer bloom and ripening	Earlier..... later	Advanced; Ripening phases less pronounced trend;
2. Early spring (hazel, alder, aspen BBCH61)		Large year-to year variability; Highest slope values; Strong advanced;
3. Spring bloom (BBCH61)		Flowering of wild and garden berries, shrubs and trees during May; Strong advanced;
4. Mix		Variable;
5. "Birdy"		Birds arrival earlier; Insects – negative tendency; Field works – variable.
6. Deep autumn		First frost, birds migration, first snow. Positive trends.
7. Leaves senescence		Species-species variability (maple and aspen – advanced, other – delay); Regional differencies.

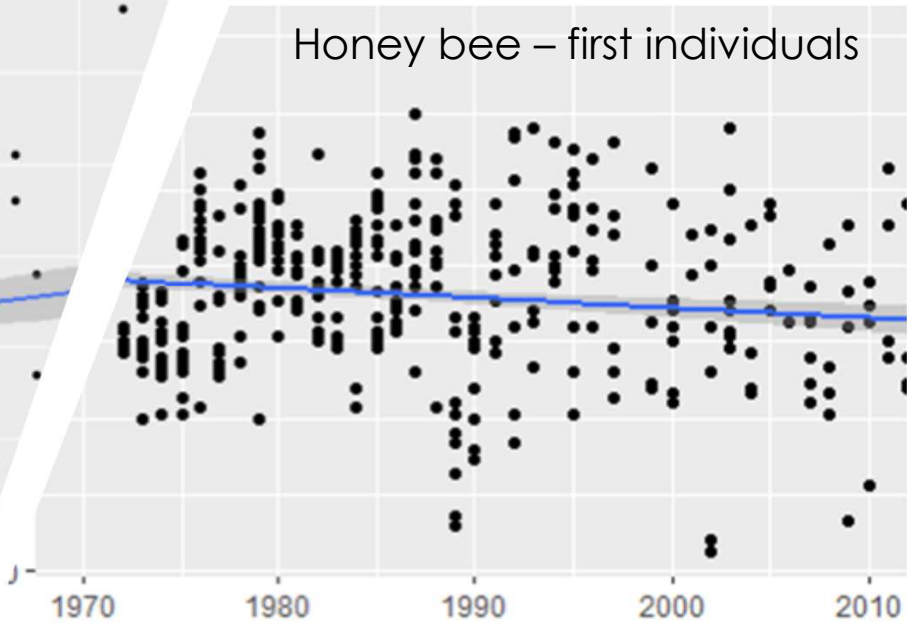
Long term phenological trends











1. **Data base:** > 47 000 records: 5 taxsonomic groups, agrarian activities, abiotical observations (first and last frost, first snow, snow melting);
65 % > 11 years data series; long term data (1970-2018)

2. **Seven clusters:** 3 blooming clusters (early flowering, second blooming (maple tree) and late spring; distincts 2 autumn clusters (leaves senescence and birds migration);

3. spring **trends** - negative; autumn – variable.

4. influecing factors – coming soon...

Conclusion remarks

PostDoc Latvia

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Valsts izglītības attīstības aģentūra

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