

Assessment of agrobiodiversity status in the north of Iran

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INTRODUCTION & AIM

Loss of biodiversity in agroecosystems is considered a significant problem. Therefore, to protect this biodiversity, policies that are consonant with and strategically support ecosystems should be considered. Given the importance of biodiversity in sustainable agricultural systems and the observed agricultural variability in Guilan Province over the past two decades, this study was conducted to determine the biodiversity variability of crop and horticultural species in Guilan Province, northern Iran.

METHOD

The location of Guilan province, including its cities, is shown in Figure 1. The data were classified into different groups: cereals, industrial crops, pulses, forage crops, orchards, and vegetables. All raw data were entered into Microsoft Excel (version 2013) based on region and year. Subsequently, several biodiversity indices—including Shannon-Wiener, Margalef, Menhinick, Simpson, richness, evenness, and Berger-Parker—were calculated.

RESULTS & DISCUSSION

The results revealed significant variation in agrobiodiversity indices within Guilan Province during the study period (Table 1). For instance, the Shannon-Wiener index for crop species increased from 0.62 to 0.66, while for horticultural products, it increased from 1.82 to 1.97. This increase was notably higher for horticultural products compared to crop species. The findings also indicated that Guilan Province does not exhibit an optimal situation concerning the Shannon-Wiener index, and from the perspective of cultivated species, there was relatively high similarity among townships. A significant factor contributing to the shift in dominance among horticultural species was the expansion of kiwi and citrus cultivation in the province

Table 1- Species richness index of crop and horticultural species in cities of Guilan province

| Species richness | Horticultural species(H) Crop species (C) | County |
|------------------|--|--------------------|
| 12.5 | C | Astara |
| 18.6 | H | |
| 12.5 | C | Astaneh Ashrafeyeh |
| 18.4 | H | |
| 14.0 | C | Amlash |
| 16.3 | H | |
| 5.9 | C | Bandar-Anzali |
| 14.88 | H | |
| 15.52 | C | Talesh |
| 18.35 | H | |
| 10.76 | C | Rasht |
| 18.11 | H | |
| 12 | C | Rezvan shahr |
| 15.47 | H | |
| 15.76 | C | Roodbar |
| 21.05 | H | |
| 11.94 | C | Roodsar |
| 17.47 | H | |
| 11.52 | C | Siahkal |
| 15.88 | H | |
| 12.29 | C | Shaft |
| 20.76 | H | |
| 13.94 | C | Sowmehsara |
| 17.41 | H | |
| 8.88 | C | Fuman |
| 18.88 | H | |
| 8.64 | C | Lahijan |
| 16.29 | H | |
| 8.64 | C | Langrood |
| 15 | H | |
| 7.47 | C | Masal |
| 15.23 | H | |
| 11.18 | C | Province |
| 17.32 | H | |

Fig 1- Location of Guilan province by its cities in Iran

CONCLUSION

Overall, these results suggest that species diversity in Guilan Province was low in most townships. The trend of changes in the indices demonstrated that biodiversity in many regions decreased from 1998 to 2014, in some cases reaching its lowest level. Therefore, methods such as cultivating diverse varieties of crops and horticultural species, implementing crop rotation, and employing intercropping strategies could be utilized to enhance the sustainability of agroecosystems in this province.

FUTURE WORK / REFERENCES

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