Soybean grain protein and oil differences between Argentine cropping areas: an on-farm sampling approach

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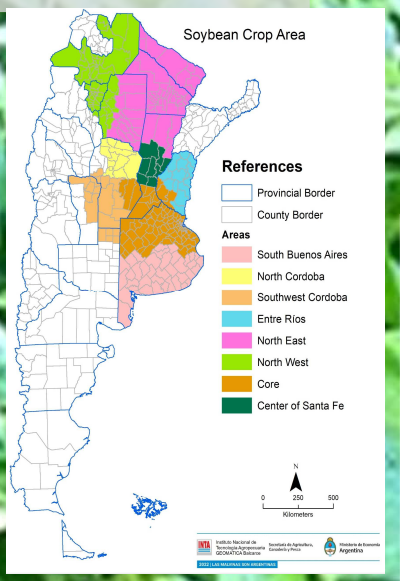
INTRODUCTION

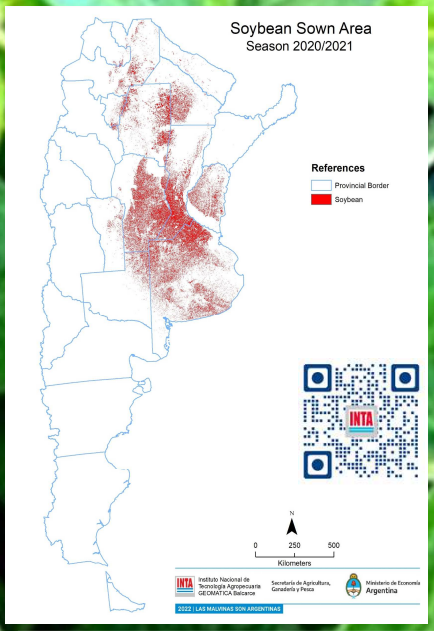
Soybean (Glycine max (L.) Merr.) is the most important crop in Argentina. It grows in different types of environments along the national area, considering an ample latitudinal range (-21°S to -55°) and different crop management. Argentinian soybean quality parameters: protein (% db), oil (% db) and PROFAT (sum of protein and oil % db) was previously studied in regional or partial approaches .

The aim of this study was to explore differences between environments and soybean quality along the country.



MATERIALS & METHODS

Five hundred forty four soybean on-farm samples (crop cycle 2020-2021) from eight homogenous areas, were studied: Core (n= 243), Santa Fe Centro (n= 78), Cordoba Sudoeste (n=58), Cordoba Norte (n=43), Buenos Aires Sur (n=37), NOA (n=35), Entre Ríos (n=26) and NEA (n= 24). Each area sample number was proportional to the sown surface. Seeds composition (protein (% db), oil (% db), PROFAT (sum of protein and oil % db)) was determined using a near infrared spectroscopy (NIR) device.



RESULTS

As a result, the means of the analyzed samples were: 36.6 ± 1.5 (% db) for protein, 23.0 ± 1.6 (% db) for oil and 59.5 ± 1.4 (% db) for PROFAT. Among the studied areas, Santa Fe Centro showed the maximum oil mean value (24.7 % db) and NOA the maximum protein (38 % db) and PROFAT values (60.6 % db). On the other hand, Buenos Aires Sur showed the minimum oil mean (21% db) and PROFAT (57.9% db) values, and Santa Fe Centro the minimum protein (35.7% db).

CONCLUSIONS

A geographical indication could be useful to enhance the commercialization of high quality seeds. This ongoing study is carried on by this research group in order to validate these grain quality differences observed among areas.

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