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Applications of near infrared reflectance spectroscopy in grassland science

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Key words : near infrared reflectance spectroscopy , grassland science , application review , current situations , home and abroad

Introduction The technology of near infrared reflectance spectroscopy has the characteristics of accuracy , rapidness and free from contamination , therefore , more and more grass workers make much account of it . The application on the aspect of grass of NIRS started late and was more unprogressive compared to that on other fields , and the conditions of which was more serious in China . In recent thirty years , the analytical technology of NIRS has been applied in the aspects of grassland science in distinguishing the compositions of plant communities , evaluating the qualities of forages and feedings , predicting the intaking characteristics of livestock towards forages etc . The aim of this paper was to summarize the applications of NIRS in the field of grassland science .

1 . Predicting products and qualities of forages during the growing seasons (Brown et al . , 1990)

2 . Distinguishing the plant compositions in different communities

3 . Identifying the contents of mineral elements compositions of forages

4 . Predicting the intaking characteristics of livestock towards forages (Agnew , 2004)

5 . Identifying the qualities of domesticated animal products (Prieto et al . , 2006)

6 . Monitoring the nutritional conditions of ruminants (Landau et al . , 2006)

Conclusions There has been great advances in the achievements of basic and applied studies of NIRS gained in the grassland science . The achievements we mentioned in the paper were mainly from abroad and can not be used directly in the same areas within our country because of the huge regional differences . Therefore , great efforts of utilizing NIRS technology into the various aspects of grassland science should be done to further improve the fundamental researches and application studies of the development of grassland science in China .

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