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Chapter 4 - Legumes for efficient utilization of summer fallow

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Abstract

Legume fallow crops play a major role in the arid and semiarid regions where dryland agriculture is practiced. Legumes provide a competitive advantage of biologically fixed nitrogen (N) compared to any other crop species while offering many other benefits. Therefore, different types of legume fallow are practiced in many regions of the world. However, the anticipated outcome depends on the combination of species selection and management practices. In addition, there is a lack of synthesis of information on how legumes contribute to efficient summer fallow. Thus, this book chapter is aimed at reviewing the current status of legume fallow, its benefits, limitations and future prospects. Accordingly, the species selection varies to the climatic regime and the purpose of cultivation. Species selection is critically important in mix cropping so that compatible species can provide synergetic benefits. The time of establishment and termination of

legume fallow crop, termination method, and selection of weed control are few management practices that could impact the outcome. Furthermore, the accurate extent of legume-based summer fallow for each region is not currently available. It is unlikely that a single species or management practice is suitable for all conditions. Therefore, site-specific management of legume fallow is highly recommended to optimize the overall outcome. The necessity of long-term studies focuses on N losses to the environment and to improve the genetic potential of fallow legume species were identified as key areas of future research and development in this domain.

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Keywords

Agriculture; Cover crop; Cropping systems; Fallow; Nitrogen fixation; Pulses

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