

北方旱作农业区耕作体系关键技术

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摘要: 对构成北方旱作区蓄水保墒耕作体系的关键技术进行了阐述,以地表覆盖、少耕免耕技术为核心,以联合作业为手段,达到蓄水保墒、培肥地力的目的。总结了6项新技术:一次完成玉米秸秆、根茬粉碎并部分覆埋复合作业的秸秆根茬联合处理技术;在同一刀辊与刀盘上完成旋耕、碎茬两种作业的旋耕碎茬通用技术;只在种床部分进行少量耕作(或只开沟)的条带少(免)耕精密播种技术;垄上覆膜沟内播种的起垄膜侧沟播技术;利用仿生学设计土壤耕作部件的机械仿生减阻技术;无秸秆种床进行免耕播种的免耕播种秸秆防堵技术。同时给出了耕作体系构成图。This paper describes the tillage technologies for the tillage system of soil water storage and preservation in the area of dry farming of northern China, with surface mulching, reduced-till and no-till as the core technologies, based on combined operations, to achieve the goal of soil water storage and preservation and improving soil fertility. It summarizes six innovative technologies involving the combined stalk and stubble management technology, in which the stalk and stubble of corn can be broken and partially buried in soil at one time; the universal technology for rototilling and stubble breaking, in which the two operations, can be done on the same blade rotor and disc; the strip reduced-till (no-till) precision seeding technology, in which less-tillage (or only furrowing) is needed in the seed bed; the ridging and film-side furrow sowing technology, in which the ridge is covered with the film and seeds are sowed in the furrow; the mechanical bionic resistance reduction technology, which uses the soil working tool designed based on bionics; and the no-till planting and blockage prevention technology, in which no-till planting is conducted in the residue free seed bed. It also shows the composition diagram of the farming system.

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