Research progress of maize cultivation technology

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Abstract: This paper describes the research progress of maize cultivation techniques for increasing yield , analyzes the application of remote sensing technology in maize cultivation , summarizes new corn management Knowledge model , to increase corn yield , promoting the development of agriculture in China .

Keyword: Corn ; Culture Technology ; Research Progress

1. techniques for increasing production of corn in maize

In recent decades , agricultural experts from all over the region The following research nonporous : the relation between growth and development and environmental factors in maize the Department is nonporous ; Researching the process of male-female differentiation nonporous ; nonporous different leaves position blade structure and function , for different plant types , density , fat The photosynthetic rate of maize population under the condition of force nonporous the . corn planting tight degree of growth is an important performance of maize cultivation technology progress . mass test results show , higher production level , The most suitable density for corn is greater. . () planting density has the closest relationship to maize variety and soil fertility . total body Planting principle for : If the breed is early dwarf , should be planted intensively; If breed is late high pole , Should be sparsely planted ; If the soil is higher than the, planting density is wider ; if land fertility is low , planting density range Narrower . Maize planting density nonporous theory to some extent for our country The climatic state of the region provides a suitable planting density range , Large lift high density of corn grown in China .

in cultivation stimulation techniques , Fertilizer Utilization is also the focus of research nonporous , its The main research nonporous in includes : application of delayed fertilizers in corn production ,, corn fertilization , recommended plan for fertilization of maize in northeast China and Huang-huai hai area . current , animal Husbandry develops rapidly , Organic Fertilizer usage increasing , The and agricultural experts are still vigorously promoting corn straw return to field technology ; corn and legumesPlant Mix , intercropped Increase corn yield . All of the above technical measures "" to some extent, the progress of fertility technology is displayed .

Agricultural experts ' research on increasing yield of maize nonporous the direction is : Research nonporous How to increase single plant productivity , then grind nonporous content into improved plant type enlargement Group , extending light and time and filling time to increase population throughput , nonporous direction changes to how to increase group uniformity , How to guarantee after-flower substances efficient production . in the maize population anti-fall , disease resistance, etc. , The presents the Higher requirements .

2. Application of remote sensing technology in maize cultivation

2.1 application of in corn biomass monitoring

The maize growth period is the effect of the visible light reflectance of the maize canopy , near infrared The

important factor of reflectivity size , with growing periods of time , Canopy spectral reflectance decreases gradually in red light region , in near infrared range keep rising , When the difference is maximum , near-infrared reflectance will drop . LA1 is reflecting crop growth , to determine the primary indicator of crop yield . related nonporous show , In the summer corn bell to the spinning period is the prediction of spectral planting The best time to be indexed , based on LAl Overall change , Prediction , Verify the predicted results with relevant test data , hint spectral vegetation The index enables LAl to accurately predict . especially near infrared band and Green Light band ratio and LAl has a significant exponential relationship , Corn Variety , Birth Time , nitrogen levels and other factors do not affect it .

2.2 application of in the monitoring of maize nitrogen nutrition status

in the traditional nitrogen nutrition test , Takes a lot of time , Gold

money to sample , Determination and data analysis , and poorly applied . close to year technology development , Crop Nitrogen Nutrition Diagnostics start wide applicationnondestructive Testing technology . This technique can accurately evaluate the nitrogen situation of crops , will become a popular trend for crop nutrition diagnostics . Remote sensing technology in the absence of " loss Test technology " , The is used to determine crop nitrogen nutrition by detecting the crop canopy light reflection properties and the. . by applying Active Remote sensing for objects in for corn growing period , Corn Horn mouth period is an important period for fertilization , on this period NDVI changes to chlorophyll most sensitive , and NDVI The has a clear for chlorophyll content and nitrogen content in maize. Explicit line dependencies so Using Remote sensing technology to guide maize fertilization Row High .

2.3 application in yield estimation

compared to traditional statistical methods , Remote sensing technology can in the shortest time To obtain food production information in large regions , and then timely supply and demand for grain on account forecast . maize yield formation affected by many factors , is a A more complex biological process , Remote sensing data primarily for basic agronomy to analyze the relationship between parameters , And then construct the model of remote sensing yield estimation . its There are several ways to model estimation of remote sensing: : Output - Remote sensing Spectra exponential statistics mode , yield component mode , potential - Force yield modulo type , crop dry matter quality - crop yield pattern . has nonporous results , In the analysis of maize yield formation process , PVI the , RVI ,CWSI A scheme to build a model for yield estimation factors , can improve yield accuracy , Precision is no less than 90%.

3. Corn Management knowledge Model

Agricultural experts undergo a long period of research nonporous , creates corn growth Simulation Model , Research nonporous in maize simulation technology in corn cultivation expert knowledge , finally created corn cultivation management Information System . Guo Yun-yu, and so on in maize management knowledge expression system infiltration of mathematical modeling technology , to create a temporal and spatial pattern of variety selection and seeding period dynamic know model . Zhaoshunde Analysis of multiple eco-environments by applying weight method factor effect on maize seedling rate , constructed maize suitable for seeding and dense The degree range determines the knowledge model . compared to traditional corn management knowledge model , The new model above is more comprehensive , Independence better , to explore nonporous crop production The potential evaluation results laid the groundwork for .

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