Entrustment Contract for Field Experiment

Name of Contract: Field Experiment on Additional Application of Carbon Chain Enzymatic Hydrolysate (for Root Growth) in Maize

Entrusting Parties (Party A and Party B): Cultivated Land Quality Protection Station of Xinyi City, and Xinyi Sumeng Fertilizer Co., Ltd.

Entrusted Party (Party C): Yilan Green Materials Industry Research Institute Co., Ltd., Xinyi City

Date of Signing: June 15, 2023

Party A and Party B: Cultivated Land Quality Protection Station of Xinyi City and Xinyi Sumeng Fertilizer Co., Ltd.

Party C: Yilan Green Materials Industry Research Institute Co., Ltd., Xinyi City

In accordance with the provisions of the *Civil Code of the People's Republic of China*, Party A and Party B hereby enter into this Contract with Party C on the works related to entrusting of "Field Experiment on Additional Application of Carbon Chain Enzymatic Hydrolysate (for Root Growth) in Maize".

I. Name of Contract

Entrustment Contract for Field Experiment on Additional Application of Carbon Chain Enzymatic Hydrolysate (for Root Growth) in Maize

II. Services

Party C shall conduct a field experiment on additional application of carbon chain enzymatic hydrolysate (for root growth) in maize on behalf of Party A and Party B as follows:

(1) Regular/quantitative fertilization as Party A and Party B may require;

(2) Timely collection and investigation;

(3) Data collection and sampling;

(4) Analysis and other services;

(5) Preparation of an experiment report;

III. Work Conditions and Cooperation Matters

In order to cooperate with Party C in providing the technical services, Party A and Party B shall furnish Party C with the following work conditions and undertake the following cooperation matters:

1. During the cooperation process, Party B shall furnish Party C with the fertilizers and associated instructions of use, as well as other conditions necessary for the conducting of the experiment;

2. Party A is responsible for supervising the overall progress of the experiment conducted by Party C and Party B shall make timely payment in full amount to Party C for the relevant entrusted experiment fee, as agreed in the Contract;

3. Over the course of cooperation between the three parties, none of the parties shall apply for relevant scientific research, platform or talent projects in the name of any other party without consent, and when such application is necessary, the three parties concerned shall sign an agreement separately.

IV. Payment for Technical Services and Payment Method

Party B shall pay the entrusted experiment fee of RMB Ten Thousand Only (RMB 10,000) within 7 working days after receiving the field experiment report completed by Party C.

V. Term of Cooperation

June 15, 2023 - December 31, 2024.

June 15, 2023 - December 31, 2024.

VI. Property Rights

In the event of all and any disputes arising from or in connection with this Contract during the performance of

this Contract, Party A, Party B and Party C shall resolve the dispute through friendly consultation. Should the dispute cannot be resolved through consultation, a lawsuit shall be filed with the people's court within the jurisdiction where Party A is situated.

VII. Application Scope of Report

This report serves solely as a reference for local cultivation practices, and Party C does not assume liability for any issues arising from the use of this report for any other purposes.

VIII. This Contract is made in triplicate, one copy for each party, and each copy shall have the same legal force. This Contract shall become effective upon the signatures and seals of the parties.

Entrusting Party (Party A): Cultivated Land Quality Protection Station of Agricultural and Rural Affairs Bureau of Xinyi City

Seal: Cultivated Land Quality Protection Station of Xinyi City

Detailed Address: No.101 Xindong Road, Xinyi City

Entrusting Party (Party B): Xinyi Sumeng Fertilizer Co., Ltd.

Seal:

Tel.: 18361572221

Detailed Address: Suite 502, Unit 1, Building No.30, Shubin Neighborhood, Xinyi City

Entrusted Party (Party C): Yilan Green Materials Industry Research Institute Co., Ltd., Xinyi City

Seal:

Tel.: 0516-88998929

Detailed Address: Building A8, Scientific and Technological Innovation Park, Xinyi Economic Development Zone, Xuzhou City, Jiangsu Province

October 16, 2023

Experiment Report

Name of Experiment: Field Experiment on Additional Application of Carbon Chain Enzymatic Hydrolysate (for Root Growth) in Maize

Entrusting Parties: Cultivated Land Quality Protection Station of Xinyi City, and Xinyi Sumeng Fertilizer Co., Ltd.

Entrusted Unit: Yilan Green Materials Industry Research Institute Co., Ltd., Xinyi City

Experiment Location: Wuying Village, Xindian Town, Xinyi City

October 15, 2023

Field Experiment on Additional Application of Carbon Chain Enzymatic Hydrolysate (for Root Growth) in Maize

I. Purpose of Experiment

The experiment was intended to investigate how the additional application of carbon chain enzymatic hydrolysate (for root growth) had an impact on the yield and quality of maize. Different application rates were tested to determine the optimal topdressing level that would facilitate crop yield and quality improvement while reducing costs and increasing income. The findings of this experiment were expected to provide a theoretical reference for determining the application rate of carbon chain enzymatic hydrolysate (for root growth) in local maize cultivation practices.

II. Experiment Date and Location

Experiment Date: June 14, 2023 - October 15, 2023; Experiment Location: Wuying Village, Xindian Town, Xinyi City.

III. Experiment Materials

1. Experimental Maize Variety: Longchuang 310.

2. Experimental Soil: The representative and primary soil types used for maize cultivation in Xinyi City, with wheat as the fore-rotating crop. Details about the experimental soil in the plots: pH of 5.81, organic matter content of 29.7g/kg, total nitrogen of 2.36g/kg, available phosphorous of 75.66mg/kg, and rapidly available potassium of 376.45mg/kg.

3. Experimental Fertilizers: Urea, 15_N-15_P-15_K Yonfer Wanbao Slow and Controlled Release Compound Fertilizer, and KEJIEJIA Carbon Chain Enzymatic Hydrolysate (for Root Growth).

The experimental object was Longchuang 310, a representative maize variety, for studying the effect of additional application of carbon chain enzymatic hydrolysate (for root growth) at different application rates in maize cultivation.

(I) Experimental Treatments

There were 4 experimental treatments, each with a length of 4x10m, 40m^2:

(1) CK: Conventional fertilization

(2) Treatment 1: Additional application of carbon chain enzymatic hydrolysate (for root growth) at an application rate of 800mL/mu

(3) Treatment 2: Additional application of carbon chain enzymatic hydrolysate (for root growth) at an application rate of 1,000mL/mu

(4) Treatment 3: Additional application of carbon chain enzymatic hydrolysate (for root growth) at an application rate of 1,200mL/mu

(II) Fertilizer Planning and Management

Details of fertilizer application in the experiment are shown in Table 1 and Table 2. The conventional fertilization included 10kg/mu of 15_N-15_P-15_K Compound Fertilizer with 40kg of urea as base fertilizer, equivalent to 19.4kg of pure nitrogen, 1.5kg of phosphorus pentoxide, and 1.5kg of potassium oxide; the experiment was structured in a randomized block design, with a total of 4 treatments: CK (blank control), treated with conventional fertilization; T1, treated with 800mL/mu of additional carbon chain enzymatic hydrolysate (for root growth) on the basis of conventional fertilization; T2, treated with 1,000mL/mu of

additional carbon chain enzymatic hydrolysate (for root growth) on the basis of conventional fertilization; T3, treated with 1,200mL/mu of additional carbon chain enzymatic hydrolysate (for root growth) on the basis of conventional fertilization, with foliage fertilizer diluted 100 times.

Table 1 Types and Application Rates of Fertilizers by Treatment

Treatment	**Fertilizer Input (kg/mu)**
CK	10kg/mu of 15_N-15_P-15_K Compound Fertilizer + 40kg/mu of urea
T1	10kg/mu of 15_N-15_P-15_K Compound Fertilizer + 40kg/mu of urea + 800mL/mu of carbon chain enzymatic hydrolysate (for root growth)
T2	10kg/mu of 15_N-15_P-15_K Compound Fertilizer + 40kg/mu of urea + 1,000mL/mu of carbon chain enzymatic hydrolysate (for root growth)
T3	10kg/mu of 15_N-15_P-15_K Compound Fertilizer + 40kg/mu of urea + 1,200mL/mu of carbon chain enzymatic hydrolysate (for root growth)

Table 2 Fertilizer Nutrient Planning and Management by Treatment

Treatment	**Fertilizer Input (kg/plot)**
CK	0.6kg/mu of 15_N-15_P-15_K Compound Fertilizer + 2.4kg/mu of urea
T1	0.6kg/mu of 15_N-15_P-15_K Compound Fertilizer + 2.4kg/mu of urea + 47.97mL/mu of carbon chain enzymatic hydrolysate (for root growth)
T2	0.6kg/mu of 15_N-15_P-15_K Compound Fertilizer + 2.4kg/mu of urea + 59.97mL/mu of carbon chain enzymatic hydrolysate (for root growth)
T3	0.6kg/mu of 15_N-15_P-15_K Compound Fertilizer + 2.4kg/mu of urea + 71.96mL/mu of carbon chain enzymatic hydrolysate (for root growth)

IV. Field Management, Sample Collection and Testing

The whole growth period was about 121 days, from land preparation and application of base fertilizer completed on June 14, 2023 in accordance with the experimental design to harvest on October 15, 2023. The maize harvest was carried out and calculated separately on a plot-by-plot basis. Samples were taken to the laboratory for sample preparation and seed selection, and indicators such as thousand kernel weight were determined. The harvested maize kernels were mixed, of which about 200g of kernels were dried in an oven at 75℃, crushed and screened with a 20-mesh sieve for indicator testing.

Sampling of foundation soil from the plough layer before the start of the experiment: On June 14, 2023, prior to rotary tillage and fertilization, foundation soil samples were collected at multiple points in the experimental plots using the “zigzag” method, and there were 5 points in total. About 300g of soil was sampled from the uniformly mixed soil collected from the 5 points and placed in a sealed bag. It was then taken to the laboratory for natural air drying and screened with 20-mesh and 100-mesh sieves for subsequent determination of physical and chemical indicators. Collection of soil samples from the plough layer in each experiment plot before the end of the experiment: Soil samples were collected in each experiment plot using the same method before maize harvest on October 15, 2023.

The pH value of soil was determined using the electrode method after 30 minutes of shaking and extraction at a soil-water ratio of 1:5; the organic matter content of soil was determined using the external heating-potassium dichromate oxidation method; the total nitrogen of soil was determined using the Kjeldahl method through concentrated sulfuric acid-hydrogen peroxide digestion; the available phosphorus of soil was determined using the sodium bicarbonate extraction-molybdenum blue colorimetry method; the rapidly available potassium of soil was determined using the ammonium acetate extraction-flame photometry method. Kernel weights were measured using a centesimal electronic balance. The nutrient content of plants was determined through H_2SO_4-H_2O_2 digestion, in which the total nitrogen content was determined using a semi-automatic Kjeldahl apparatus, the phosphorus content was determined using the molybdenum blue

colorimetry method, and the potassium content was determined using a flame photometer.

V. Analysis on Experimental Results

1. Yield Analysis

As shown in Table 3, the maize yields in different treatments were 474.98-536.04kg/mu; the kernel/cob weight percentages were 66.5%-71.1%; and the thousand kernel weights were 322.7-340.5g. Compared with the conventional fertilization treatment, the additional application of carbon chain enzymatic hydrolysate (for root growth) could significantly increase the maize yield per mu by 9.46%, 11.28% and 12.86%, respectively. In addition, compared with the conventional fertilization treatment, the other treatments could, to some extent, increase the kernel/cob weight percentage and thousand kernel weight. Notably, Treatment 3 could significantly increase the yield and thousand kernel weight of the maize.

Table 3 Yields, Kernel Percentages and Thousand Kernel Weights by Treatment

Treatment	Maize Yield (kg/mu)	Kernel Percentage (kg/mu)	Thousand Kernel Weight (g)
CK	474.98c	66.5%b	322.7b
T1	519.93b	70.4%a	338.3a
T2	528.55b	70.6%a	340.4a
T3	536.04a	71.1%a	340.5a

2. Analysis on Physical and Chemical Properties of Soil

The physical and chemical properties of soil by treatment are shown in Table 4. The pH value ranged from 5.21 to 5.77; the organic matter content ranged from 33.7g/kg to 59.7g/kg; the conductivity content ranged from 137us/cm to 232us/cm; the alkaline-hydrolytic-nitrogen content ranged from 157.4mg/kg to 211.0mg/kg; the available phosphorous content ranged from 122.1mg/kg to 153.6mg/kg; the rapidly available potassium content ranged from 213.8mg/kg to 297.2mg/kg. Compared with the soil treated with conventional fertilization, the additional application of carbon chain enzymatic hydrolysate (for root growth) in different treatments could significantly decrease the pH value and EC value of soil. It could also significantly increase the organic matter content of soil. However, the significant reductions in alkaline-hydrolytic-nitrogen, available phosphorous, and rapidly available potassium under varying degrees of deep mechanical application indicated improved utilization and increased consumption of the rapidly available nutrient in soil.

Table 4 Physical and Chemical Properties of Soil by Treatment

Treatment	PH	EC (us/cm)	Organic Matter (g/kg)	Alkaline-hydrolytic-nitrogen (mg/kg)	Available Phosphorous (mg/kg)	Rapidly Available Potassium (mg/kg)
CK	5.77a	232a	33.7b	157.4c	122.1c	213.8c
T1	5.41b	191b	34.4b	159.3c	131.6b	231.4b
T2	5.34c	186b	35.2b	185.7b	135.8b	239.1b
T3	5.21d	137c	59.7a	211.0a	153.6a	297.2a

3. Analysis on Quality Properties of Maize

The nitrogen, phosphorus and potassium contents and quality properties of maize kernels by treatment are shown in Table 5. In different treatments, the total nitrogen content ranged from 1.19% to 1.40%; the total phosphorus ranged from 0.22% to 0.33%; the total potassium content ranged from 0.263% to 0.347%; the total starch content ranged from 515g/kg to 620g/kg; the crude protein content of kernel ranged from 73.5g/kg to 90.3g/kg; the volume weight of maize ranged from 0.756g/cm3 to 0.775g/cm^3. Compared with conventional fertilization, the additional application of carbon chain enzymatic hydrolysate (for root growth) could, to some

extent, increase the contents of total nitrogen, total phosphorus, total potassium, protein, total starch and volume weight of maize kernels. Notably, Treatment 3 demonstrated the highest quality indicators.

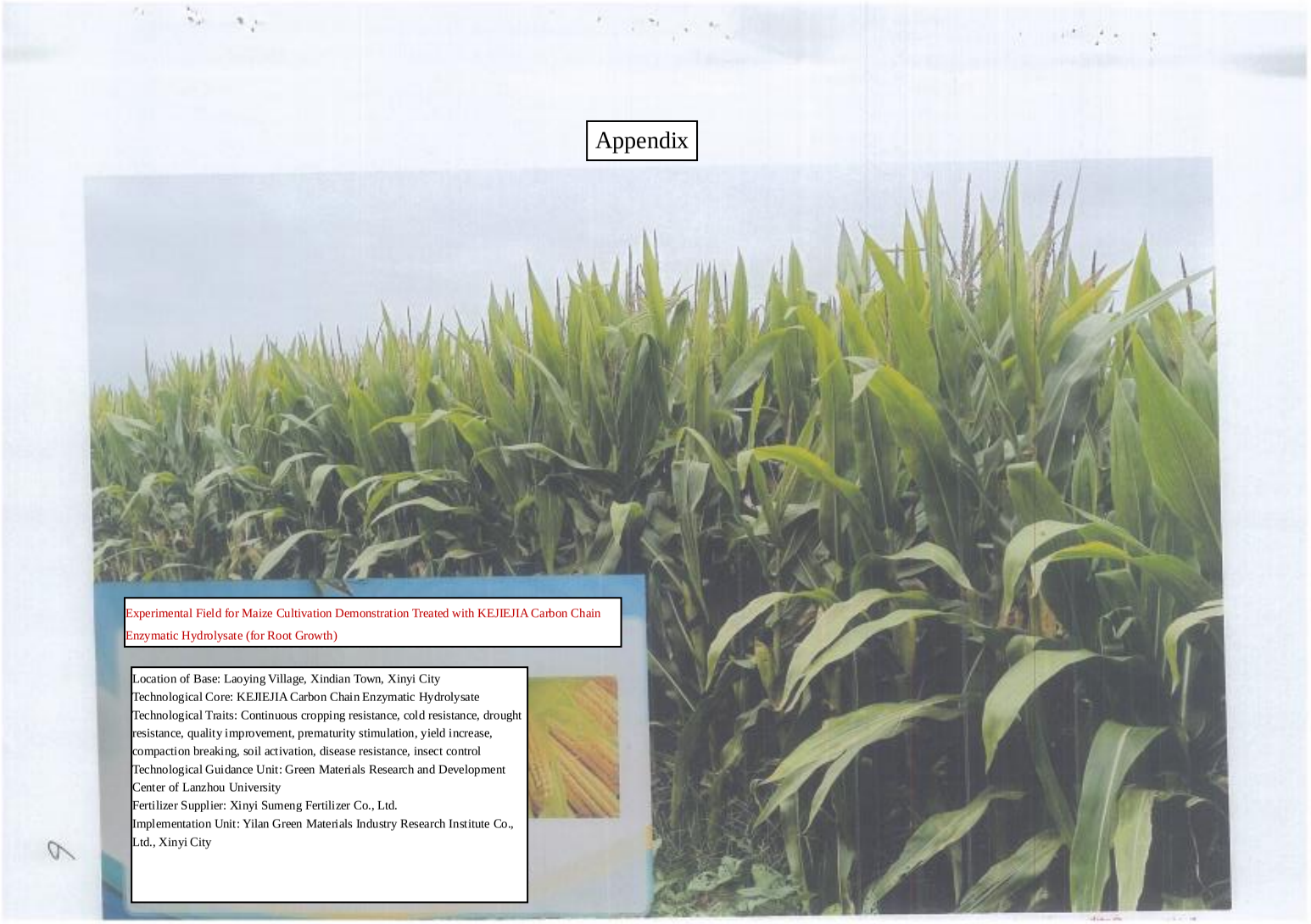
Table 5 Nitrogen, Phosphorus and Potassium Contents and Quality Properties of Maize by Treatment

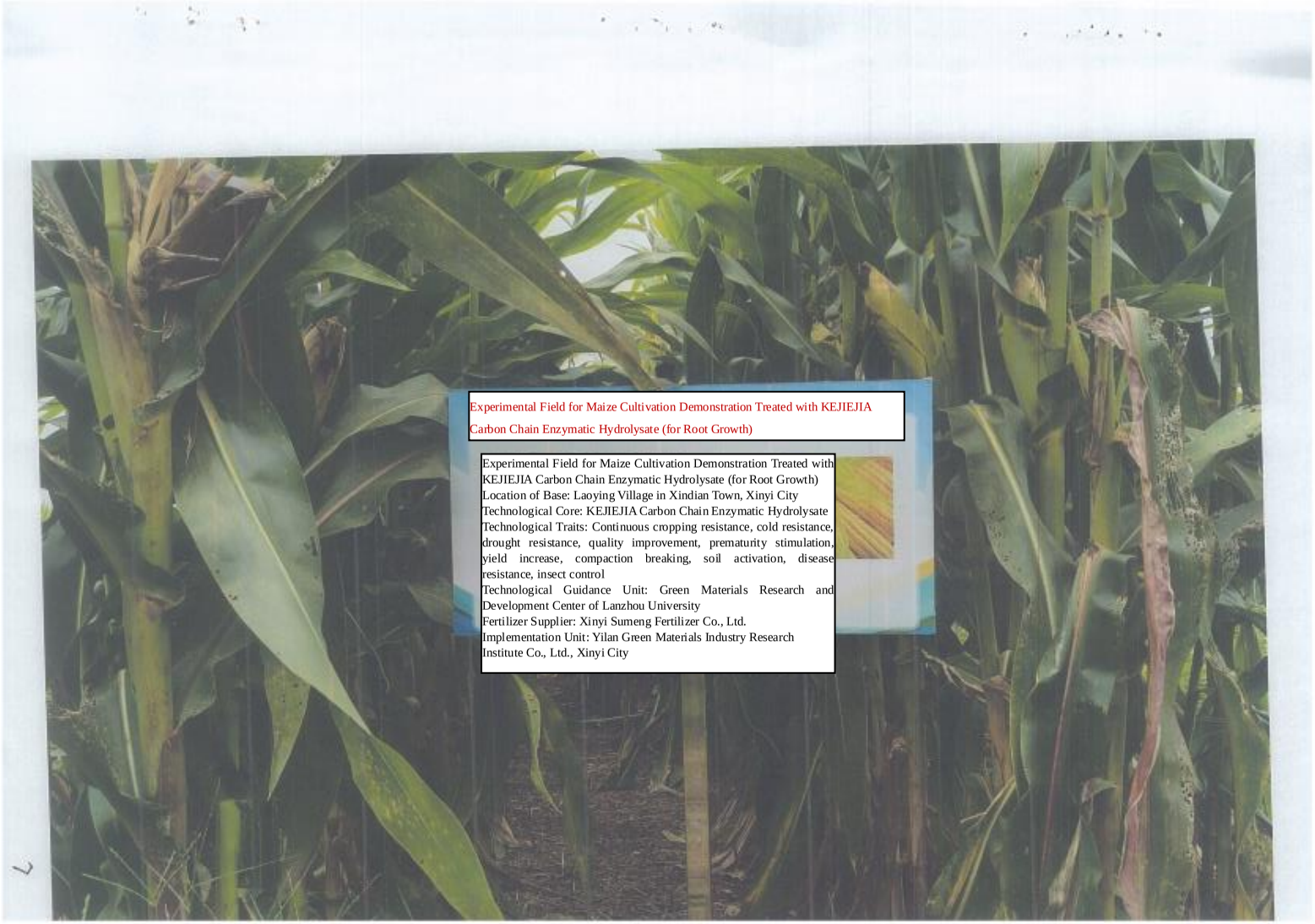
Treatment	Total Nitrogen (g/kg)	Total Phosphorus (mg/100g)	Total Potassium (mg/100g)	Total Starch (g/kg)	Protein (g/kg)	Volume Weight (mg/cm^3)
CK	11.9c	220d	263d	515d	73.5c	756d
T1	13.9a	330a	347a	542c	87.3b	769b
T2	14.0a	287c	311c	620a	87.5b	762c
T3	12.6b	298b	327b	558b	90.3a	775a

VI. Conclusion

Through the additional application of carbon chain enzymatic hydrolysate (for root growth) at various gradients, this experiment revealed that the application of carbon chain enzymatic hydrolysate (for root growth) at various gradients could increase the yield of maize and the thousand kernel weight, total nitrogen, total phosphorus, and total potassium contents of maize kernels. It could also significantly enhance the soil's ability to retain rapidly available nitrogen, phosphorus, and potassium nutrient. Notably, Treatment 2 had the optimal effect on the total nitrogen and total starch contents of maize kernels, while Treatment 3 had the optimal effect on yield, thousand kernel weight, total phosphorus, total potassium, and protein contents. On the whole, among the three treatments, the additional application of carbon chain enzymatic hydrolysate (for root growth) as foliage fertilizer at an application rate of 1,200mL/mu had the optimal effect on maize cultivation.

Appendix


Experimental Field for Maize Cultivation Demonstration Treated with KEJIEJIA Carbon Chain Enzymatic Hydrolysate (for Root Growth)
Location of Base: Laoying Village, Xindian Town, Xinyi City
Technological Core: KEJIEJIA Carbon Chain Enzymatic Hydrolysate
Technological Traits: Continuous cropping resistance, cold resistance, drought resistance, quality improvement, prematurity stimulation, yield increase, compaction breaking, soil activation, disease resistance, insect control
Technological Guidance Unit: Green Materials Research and Development Center of Lanzhou University
Fertilizer Supplier: Xinyi Sumeng Fertilizer Co., Ltd.
Implementation Unit: Yilan Green Materials Industry Research Institute Co., Ltd., Xinyi City


Experimental Field for Maize Cultivation Demonstration Treated with KEJIEJIA Carbon Chain Enzymatic Hydrolysate (for Root Growth)
Experimental Field for Maize Cultivation Demonstration Treated with KEJIEJIA Carbon Chain Enzymatic Hydrolysate (for Root Growth)
Location of Base: Laoying Village in Xindian Town, Xinyi City
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Technological Guidance Unit: Green Materials Research and Development Center of Lanzhou University
Fertilizer Supplier: Xinyi Sumeng Fertilizer Co., Ltd.
Implementation Unit: Yilan Green Materials Industry Research Institute Co., Ltd., Xinyi City

Centre Testing International

231020341199

Sample Name: Maize 1

Entrusting Party: Yilan Green Materials Industry Research Institute Co., Ltd., Xinyi City

Testing Type: Entrusted testing

Report No.: A2230500413101001C

Testing Report

Centre Testing International

Jiangsu CTI Product Standard Testing and Certification Technology Co., Ltd.

Testing Report

Testing Results:

No.	Testing Item	Unit	Testing Results	Detection Limit	Standard Limit	Single Conclusion	Testing Method
1	Protein	g/100g	7.35	0.008	/	/	The first method in GB 5009.5-2016
2	Starch	g/100g	51.5	/	/	/	The second method in GB 5009.9-2016
3	Phosphorus	mg/kg	$2.20X10^3$	1	/	/	GB 5009.87-2016
4	Potassium (measured in K)	mg/100g	263	/	/	/	The first method in GB 5009.91-2017
5	Total Nitrogen	g/kg	11.92	/	/	/	NY/T 2419-2013

Statements:

1. This report is deemed valid if it does not bear the signature of the approver, the special seal for inspection and testing or the seal on the perforation, or if it is tampered, or if the duplicate of the report does not bear the special red seal for inspection and testing;
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3. The sample information is provided by the client, and the testing results of this report are applicable to the tested samples only. The limit standards included in the report are supplied by the client and should be used for reference purposes only;
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Centre Testing International

231020341199

Sample Name: Maize 2

Entrusting Party: Yilan Green Materials Industry Research Institute Co., Ltd., Xinyi City

Testing Type: Entrusted testing

Report No.: A2230500413101002C

Testing Report

Centre Testing International

Jiangsu CTI Product Standard Testing and Certification Technology Co., Ltd.

Testing Report

Testing Results:

No.	Testing Item	Unit	Testing Results	Detection Limit	Standard Limit	Single Conclusion	Testing Method
1	Protein	g/100g	8.73	0.008	/	/	The first method in GB 5009.5-2016
2	Starch	g/100g	54.2	/	/	/	The second method in GB 5009.9-2016
3	Phosphorus	mg/kg	$3.30X10^3$	1	/	/	The third method in GB 5009.87-2016
4	Potassium (measured in K)	mg/100g	347	/	/	/	The first method in GB 5009.91-2017
5	Total Nitrogen	g/kg	13.86	/	/	/	NY/T 2419-2013

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End of Report

Centre Testing International

231020341199

Sample Name: Maize 3

Entrusting Party: Yilan Green Materials Industry Research Institute Co., Ltd., Xinyi City

Testing Type: Entrusted testing

Report No.: A2230500413101003C

Testing Report

Centre Testing International

Jiangsu CTI Product Standard Testing and Certification Technology Co., Ltd.

Testing Report

Testing Results:

No.	Testing Item	Unit	Testing Results	Detection Limit	Standard Limit	Single Conclusion	Testing Method
1	Protein	g/100g	8.75	0.008	/	/	The first method in GB 5009.5-2016
2	Starch	g/100g	62.0	/	/	/	The second method in GB 5009.9-2016
3	Phosphorus	mg/kg	$2.87X10^3$	1	/	/	The third method in GB 5009.87-2016
4	Potassium (measured in K)	mg/100g	311	/	/	/	The first method in GB 5009.91-2017
5	Total Nitrogen	g/kg	14.02	/	/	/	NY/T 2419-2013

Statements:

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Centre Testing International

Sample Name: Maize 4

Entrusting Party: Yilan Green Materials Industry Research Institute Co., Ltd., Xinyi City

Testing Type: Entrusted testing

Report No.: A2230500413101004C

Testing Report

Centre Testing International

Jiangsu CTI Product Standard Testing and Certification Technology Co., Ltd.

Testing Report

Testing Results:

No.	Testing Item	Unit	Testing Results	Detection Limit	Standard Limit	Single Conclusion	Testing Method
1	Protein	g/100g	9.03	0.008	/	/	The first method in GB 5009.5-2016
2	Starch	g/100g	55.8	/	/	/	The second method in GB 5009.9-2016
3	Phosphorus	mg/kg	$2.98X10^3$	1	/	/	The third method in CB 5009.87-2016
4	Potassium (measured in K)	mg/100g	327	/	/	/	The first method in GB 5009.91-2017
5	Total Nitrogen	g/kg	12.65	/	/	/	NY/T 2419-2013

Statements:

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