Innovative Materials
Renewed Responsibility
Sustainable Future

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Youxiangfa (Wuchang) Agricultural Co., Ltd.
Address: Retail Unit at Xingfu Hotel (below), Wuchang City, Heilongjiang Province (Location: "Apo Shiyu" restaurant storefront)

FOR THE FUTURE
守 护 明 天 和 我 们

This brochure is printed on 100% recycled eco-friendly paper. ♻

At Ruian Group, we believe that even the tiniest decision matters in stewarding our shared planet.

FOR THE FUTURE

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FOR THE FUTURE
守 护 明 天 和 我 们

PART 01

GROUP PROFILE

GROUP PROFILE

A comprehensive service provider specializing in technological innovation for new materials

Ruian Group is a global-operated new materials service provider driven by technological innovation, deeply integrated into a dual-circulation development paradigm (domestic and international economic cycles), and committed to establishing an end-to-end value chain ecosystem integrating R&D, manufacturing, and sales operations. As a representative enterprise of new quality productivity in new materials sector, we deliver competitive products and solutions through continuously innovative core technologies, professional services, and efficient operational systems. Our business spans three key domains: green and low-carbon new materials, high-performance new materials, and integrated agricultural film services. Our key served industries include: sustainable agriculture, consumer goods, packaging, 5G communication materials, 3D printing, industrial components, modern medical field, and electronics.

Guided by market demand, we operate 330,000 m^2 of smart manufacturing bases and foster industry-academia collaborations. Our innovation institutes include: Guangzhou R&D Institute, which focusing on cutting-edge material research; Joint R&D platforms with Tianjin University, Chinese Academy of Agricultural Sciences and Heilongjiang Bayi Agricultural University; and Biodegradable Agricultural Film Innovation Institute, which partnered with the Key Laboratory of Agricultural Film Pollution Prevention and Control (Beijing) under the Ministry of Agriculture and Rural Affairs. Under our Globalization 2.0 Strategy, we leverage European logistics hubs—including Genoa Port (Italy), Rotterdam Port (Netherlands), and Koper Port (Slovenia) —to establish a "48-Hour European Delivery Network" to enhance service efficiency for European clients.

We strive to create a sustainable future for all by extending industrial chains in collaboration with our partners, to uphold the mission of "Empowering Diverse Industries, Co-Creating a Brighter Tomorrow!"

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GROUP FOUNDER

An Shuyi, Head of the Board

Chairperson of Shandong Ruian Biotechnology Co., Ltd.

Master's Degree in Environment and Development, LSE

Youth Entrepreneurship Pioneer (7th), Jining City

Member of the 2nd Youth Federation Committee, Jinxiang County, Jining City

Outstanding Entrepreneur featured on "Entrepreneurship in Anhui" Program

As the new materials revolution and the global tide of carbon neutrality converge at this historic juncture, Ruian Group is charting a transformative course with our "Vertical Technology Integration Across Industrial Chains" strategy, forging a green innovation framework that bridges East and West. Over eight years, we have synchronized quantum-level breakthroughs in molecular design with 160,000 tons of green production capacity: from decoding material genomic sequences at the Guangzhou R&D Institute, to powering industrial-scale engines at the Demonstration Base in northern China. From optimizing global supply chains via EU logistics hubs, to revitalizing soil ecosystems through the Agricultural Film Pollution Prevention and Control Laboratory. This expansion transcends industrial boundaries—it is a multidimensional testament to Chinese ingenuity in addressing global environmental policies.

At the nexus of technological innovation and material science advancement, we are Penning a new chapter in human progress. 3D printing materials embody the structural vitality of smart manufacturing, 5G substrates weave eco-conscious neural networks for the digital era, and medical polymers compose molecular narratives of life and health. With elevated strategic vision, we are forging a full-chain "R&D-Manufacturing-Service" ecosystem to drive industrial transformation: Accelerating digital transformation to achieve intelligent, industry-ready production lines; Deepening industry-academia-research partnerships to cultivate a new materials innovation consortium; Expanding global footprints to establish worldwide R&D-production-distribution networks, injecting advanced material solutions into cross-sector ecosystems.

Looking ahead, Ruian Group will harness the "Dual-Carbon" goals as our strategic gravitational field, driving industrial value leapfrogs through the intellectual pulse of our global R&D nexus. We firmly believe that advanced materials should transcend mere metrics of physical performance—they must emerge as the optimal pathway to sustainable prosperity for a shared human future.

安书怡

Chairperson of Shandong Ruian

DEVELOPMENT MILESTONES

Innovation Forging Extraordinary Legacy

2018
Established Advanced Materials Lab with Tianjin University
Launched biodegradable materials project

2019
Began construction of 330,000㎡ Shandong production base

2020
- Ruian Guangzhou Research Institute commenced Operations
- Launched high-performance new materials project

2021
Shandong base commenced full-scale production

2022
- Conducted crop-specific trials for biodegradable mulch films
- Opened European office & expanded to EU, South America, SEA & India markets
- Donor for Chengdu 31st Summer Universiade

2023
- Recognized as Chinese National High-Tech Enterprise
- Established European logistics hubs (Italy/Netherlands/Slovenia)

2024
- Strategic partnership with Beidahuang Group Suihua Branch
- Collaboration with MOA Key Lab for Agricultural Film Pollution Prevention and Control
- Signed cooperation agreement with Zhuanghe Municipal Government

2025
- Won "Best Entrepreneurship Project " award on Entrepreneurship in Anhui Program
- Built rice film-planting demo base in Shaoguan, Guangdong
- University-enterprise cooperation with Heilong jiang Bayi Agricultural University
- 5,000-ton multi-functional polyester production line officially commenced operations

GROUP CULTURE

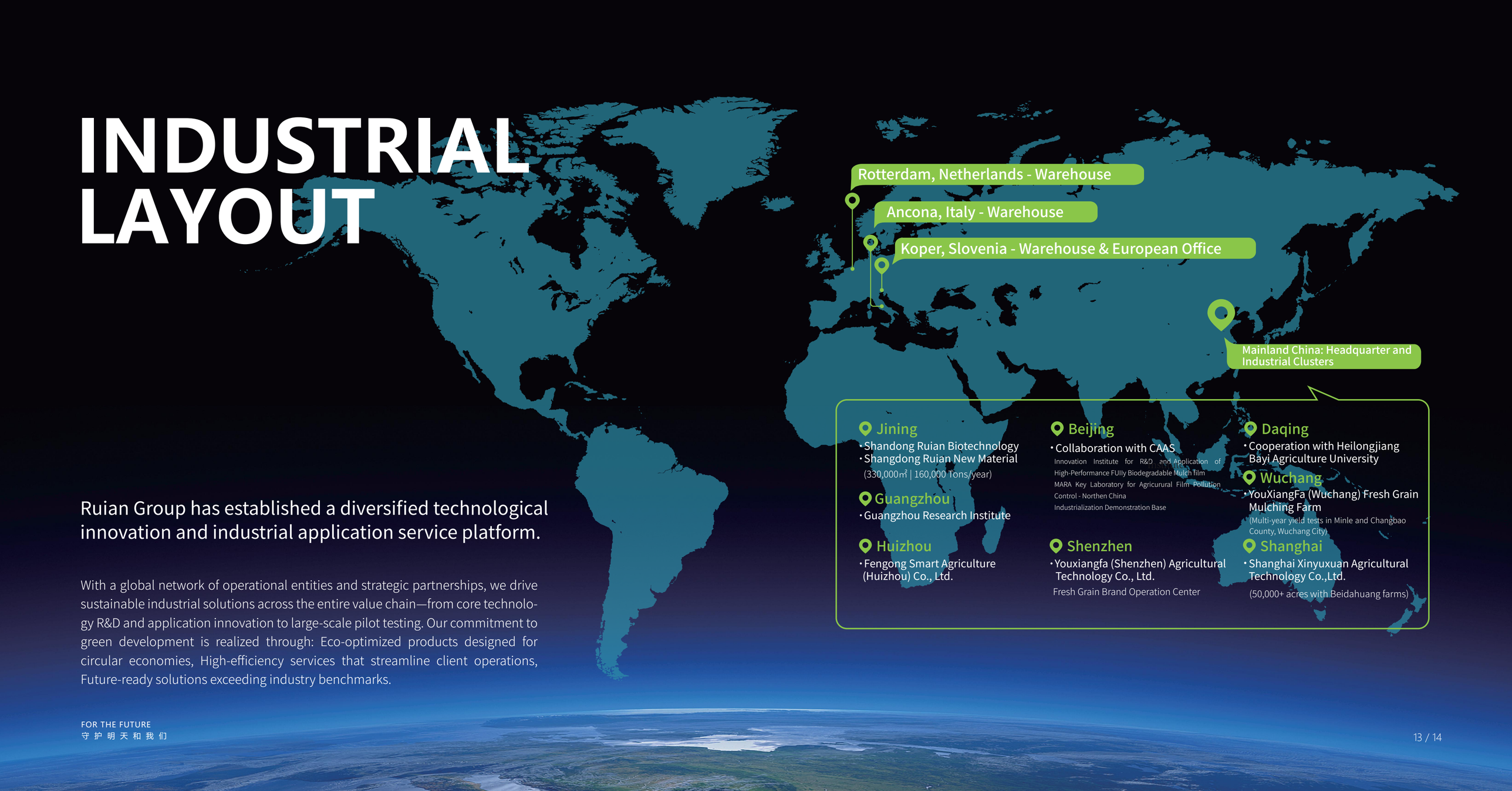
MISSION
Empowering Diverse Industries, Co-Creating a Brighter Tomorrow

VISION
Become China's Premier And Global Leading Sustainable New Materials Service Provider

SPIRIT
Reinvent With Insight, Reassure With Foresight

VALUE
Client-Centric Commitment, Innovation-Driven Leadership, Uncompromising Quality, Eco-Safe Assurance

INDUSTRIAL LAYOUT



Ruian Group has established a diversified technological innovation and industrial application service platform.

With a global network of operational entities and strategic partnerships, we drive sustainable industrial solutions across the entire value chain—from core technology R&D and application innovation to large-scale pilot testing. Our commitment to green development is realized through: Eco-optimized products designed for circular economies, High-efficiency services that streamline client operations, Future-ready solutions exceeding industry benchmarks.

COMPETITIVE STRENGTHS

Technological innovations remain our key forces driving our sustainable development and maintaining our core competitiveness

R&D Investment

100M+ R&D funding for the next five years

5% Ratio of R&D Investment

1 Independent Institute

3 Key Labs

R&D Results

20+ Scientific Researchers

9 Invention Patents

26 Utility Patents

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Qualifications

TUV Austria OK Industrial Compost

TUV Austria OK Home Compost

European Seedling Certification

Germany Din Certco Industrial Compost

US BPI Certificate

ISO three system certification

National Plastic Products Quality Supervision and Inspection Center (Beijing)

Australian ABA Home Composting Certification

Chinese National standard for biodegradable plastics

EU REACH Certificate

Quality Control

Fourier Transform Infrared Spectrometer

Thermogravimetry Differential Thermal Analyzer

Headspace-Gas Chromatograph

PC Control Tensile Tester

Industrial Layout

Shandong Ruian Biotechnology Co,. Ltd.

Shandong Ruian New Material Technology Co,. Ltd

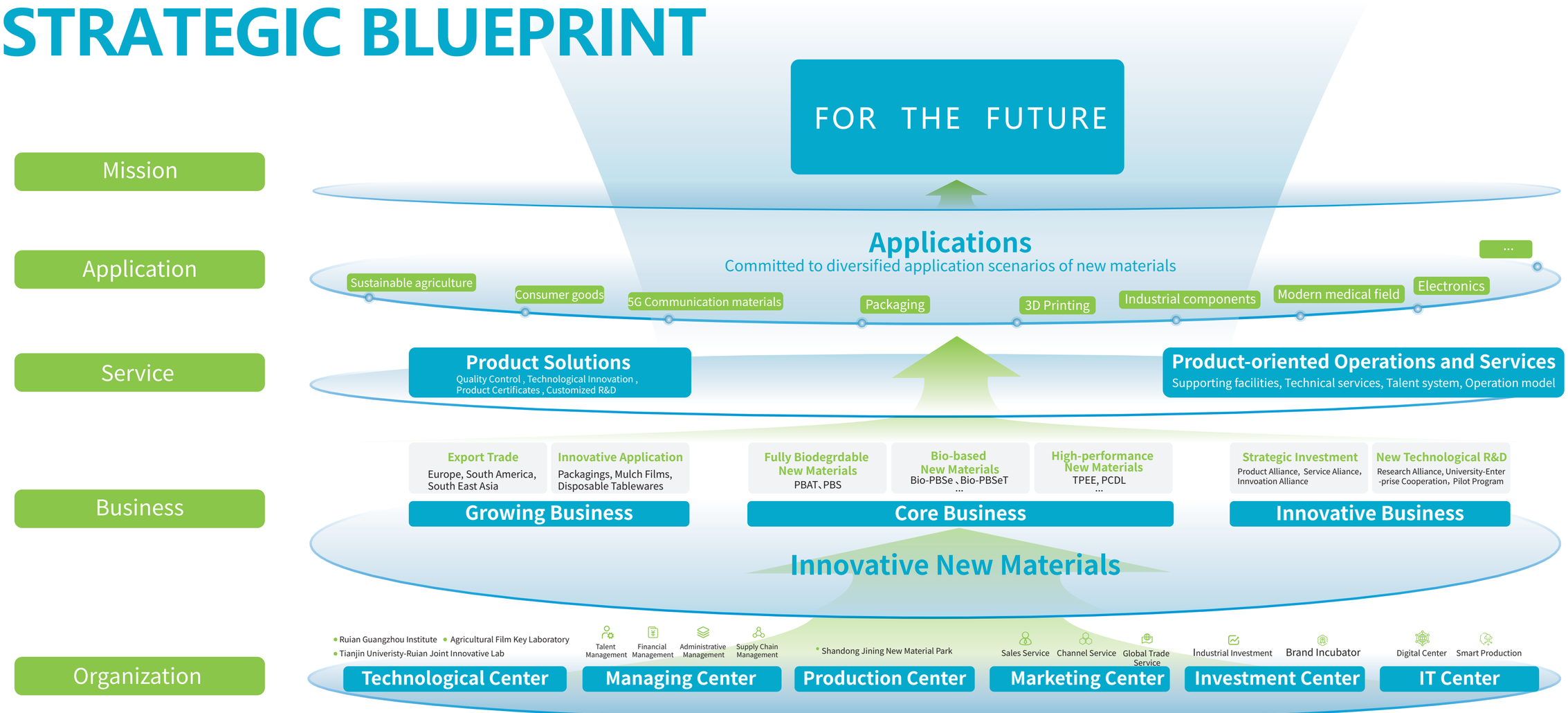
Tianjin University-Ruian Joint Laboratory

Guangzhou Research Institute

PART 02

GROUP STRATEGY

STRATEGIC BLUEPRINT



STRATEGIC ACTION

Working together to create a new chapter

University-Enterprise Cooperations

Industry recognition

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Cooperation with Chinese Academy of Agricultural Sciences

Cooperation with Inner Mongolia Academy of Agricultural and Animal Husbandry Sciences

Cooperated with Tianjin University to establish the Polymer Materials Research Institute

Cooperation with Heilong jiang Bayi Agricultural University

Established the Key Laboratory of Agricultural Film Pollution Prevention and Control of the Ministry of Agriculture and Rural Affairs-North China Industrialization Demonstration Base with the Institute of Agricultural Environment and Sustainable Development of the Chinese Academy of Agricultural Sciences

Established the High-Performance Fully Biodegradable Ground Film R&D and Application Innovation Research Institute with the Key Laboratory of Agricultural Film Pollution Prevention and Control (Beijing) of the Ministry of Agriculture and Rural Affairs

PART 03

GROUP BUSINESS

GREEN AND LOW-CARBON NEW MATERIALS

We focus on fully biodegradable new materials PBAT、PBS and other bio-based new materials with our advanced technology on balancing the degradation performance and application performance. We strictly implement green standards in the production process to reduce energy consumption and emissions. With excellent environmental protection characteristics, our products are widely used in packaging, agriculture, medical and other industries, enabling us to establish stable cooperations with customers.

Fully Biodegradable | Low-carbon Emission Reduction | Bio-based

FULLY BIODEGRADABLE MATERIAL SERIES

Green solutions to white pollution

The fully biodegradable new materials have both excellent performance and wide applications. PBAT has outstanding film-forming properties, and PBS has good heat resistance and excellent mechanical properties. They can be used in packaging, agriculture, medical and other fields. Moreover, they can both be completely biodegraded into carbon dioxide, water and inorganic salts, which perfectly fit the global green development trend and help to address the problem of white pollution.

Synthetic Materials	Modified Materials	Applications
PBAT PBS	Blown Film Material	Fully Biodegradable Packaging Bags
	Mulch Film Material	Agricultural Mulch Film
	Injection Molding Material	Disposable Cutlery
	Thermoforming Material	Disposable Food Container
	Coating Material	Coated Paper Cup

PBAT Polybutylene Adipate-co-terephthalate

Raw material: Adipic acid(AA), Terephthalic acid (PTA), 1,4-Butanediol(BDO)	
Features	Good ductility and elongation at break, good heat resistance and impact resistance. In addition, PBAT is very simliar to LDPE in terms of processing performance, and it can be blown by LDPE processing equipments.
Applications	widely used in packaging, disposable products, agriculture.

PBS Polybutylene Succinate

Raw material: Succinic Acid,1,4-Butanediol(BDO)	
Features	Excellent mechanical properties, good formability, high heat resistance and excellent processing formability (extrusion, injection molding, casting, etc.).
Applications	widely used in packaging, disposable products, agriculture, fisheries, forestry, civil engineering, medical field and others.

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BIO-BASED MATERIAL SERIES

Innovative options of sustainable development

We are constantly making breakthroughs under the balance between environmental protection and application performance. We develop Bio-PBSe, Bio-PBSeT, Bio-PBAT, and Bio-PBS series products to achieve true co-existence between high application performance and sustainability. Whether it is hot melt adhesives that require high temperature resistance, film packaging that pursues flexibility, or fast-degradable utensils, our materials can reduce carbon footprint while maintaining industrial-grade performance.

Product	Raw Material	Bio-based Content(%)	Applications
Bio-PBSe	BDO SeA	60	Hot melt adhesive
Bio-PBSe	BDO SeA	100	Hot melt adhesive
Bio-PBSeT	BDO SeA PTA	35	Films and bags
Bio-PBSeT	BDO SeA PTA	67	Films and bags
Bio-PBAT	BDO AA PTA	35	Films and bags
Bio-PBS	BDO SA	40	Injection molding and thermoforming
Bio-PBS	BDO SA	100	Injection molding and thermoforming

Degradation Property				
Product Series	Industrial Compost(58°C)	Home Compost(30°C)	Ocean Environment	Testing Standard
Bio-PBAT shopping bag	180days/98%	360days/85%	1year/80%	ASTM D5338-15
Bio-PBS coffee capsule	120days/99%	240days/90%	1year/75%	EN 13432:2000
Bio-PBSeT mailer bag	210days/97%	420days/82%	1year/78%	OECD 306B

HIGH PERFORMANCE NEW MATERIALS

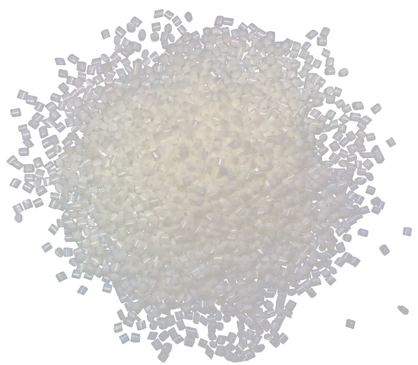
Covering TPEE, PCTG/PETG, PCDL, PEF and other products. Through continuous exploration and innovation, we optimize the differentiated properties of different products such as high temperature resistance, oil resistance, high transparency, high elasticity and high strength to adapt to the ever-changing market trends. We widely evaluate multiple fields such as automobiles, electronic appliances, packaging, and medical field etc., to provide support for the high-quality development of various industries.

Outstanding Performance | High Added Value | Superior Cost-effectiveness

Product	Features	Applications
TPEE	Low melting point, high melt strength, high foaming rate, high resilience	Footwear, packaging, automotive interior, thermal and sound insulation and other foaming industry
PCTG/PETG	High transparency, chemical resistance, easy molding and processing, environmentally friendly	Food packaging, cosmetic containers, bottles, films and special-shaped materials
PCDL	Flexible, wear-resistant, hydrolysisresistant, chemical-resistant, moisture and heat-aging-resistant, transparent,high bonding strength	Mainly used in PU, including water-based coatings,adhesives, artificial leather, transparent elastomers,transparent films, transparent coatings and high-performance PU
PEF	100% bio-based and recyclable; water, oxygen, carbon dioxide barrier rate, mechanical strength and heat resistance are all better than PET	Food and beverage packaging,cosmetics and skin care packaging,textiles such as clothing, home decoration and other industries

TPEE Thermoplastic Polyester Elastomer

Features	It has excellent mechanical properties, outstanding heat resistance and excellent processability, as well as chemical stability such as oil resistance and hydrolysis resistance, making it an ideal choice for high-performance elastomers. The rebound resilience is 75%, and the specific gravity is 30% lower than that of TPU. High low temperature resistance is up to -25°C. The microporous structure of supercritical foamed TPEE is uniform and fine, with a diameter of about 20-200um, which is better than chemical foaming. It can be recycled without residue.
Application	Widely used in high-end fields such as Automotive Seals and Piping Systems, Electronic Cable Sheaths, Industrial Conveyor Belts and Sports Equipment, Meeting The Scenarios with Strict Requirements on Elasticity, Temperature Resistance and Durability.

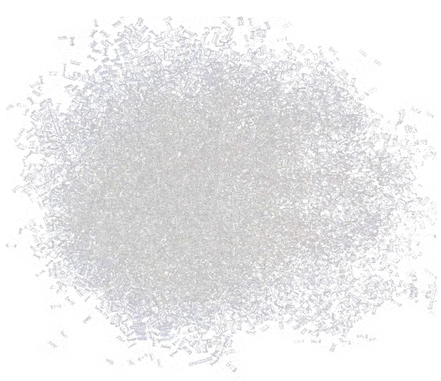


PCDL Polycarbonate Diol

Features	Polyurethane made from PCDL can have the following features: Flexibility, Wear Resistance, Hydrolysis Resistance, Chemical Resistance, Heat and Humidity Resistance, Transparency, and High Bonding Strength.
Application	Widely used in polyurethane, including Water-Based Coatings, Adhesives, Artificial Leather, Transparent Elastomers, Transparent Films, Transparent Coatings and High-Performance Polyurethanes.

PCTG/PETG Poly Ethylene Terephthalate-I , 4-Cyclohexanedimethylene Terephthalate

Features	100% recyclable, Excellent processability, High clarity, superior impact resistance , and flexural durability. Broad temperature tolerance (-40°C to 100°C), chemical resistance and UV/aging resistance.
Application	Widely used in food packaging, medical equipment, electronic products, industrial parts and other fields, and can also be used as 3D printing materials and optical devices.



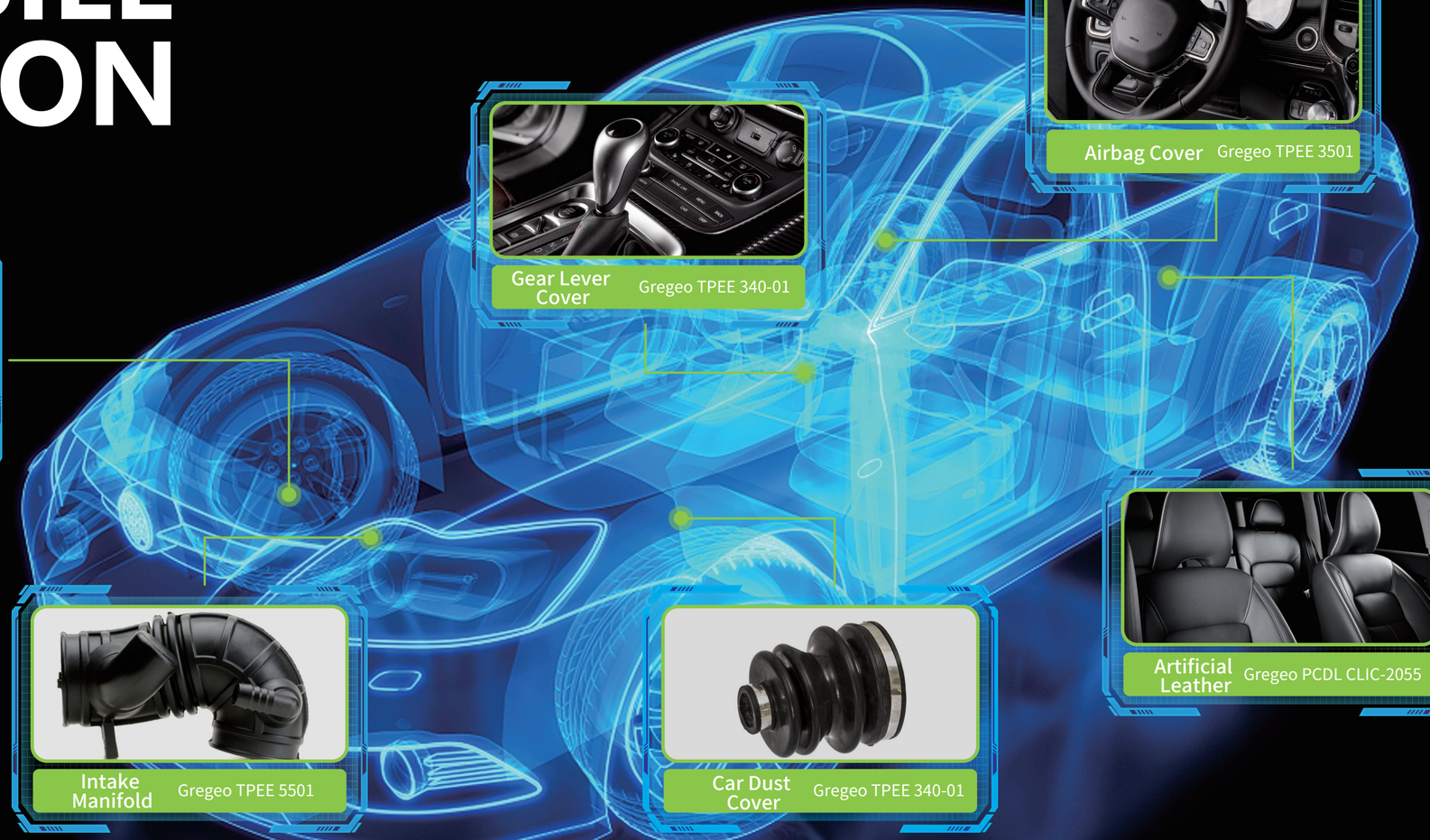
PEF Poly Ethylene 2,5-Furandicarboxylate

Features	100% bio-based, recyclable; water, oxygen, carbon dioxide barrier rate, mechanical strength and high temperature resistance are all better than PET.
Application	Widely used in Food and Beverage Packaging, Cosmetics and Skin Care Packaging, Textiles such as Clothing, Home Decoration

PART 04

DIVESIFIED APPLICATIONS

AUTOMOBILE APPLICATION



Brake Line Gregeo TPEE 6301

Gear Lever Cover Gregeo TPEE 340-01

Airbag Cover Gregeo TPEE 3501

Artificial Leather Gregeo PCDL CLIC-2055

Intake Manifold Gregeo TPEE 5501

Car Dust Cover Gregeo TPEE 340-01

Core Materials:

TPEE , PCDL -based polyurethane

Application Scenarios:

Automobile dust cover, intake manifold, airbag cover, automobile pipe, etc.

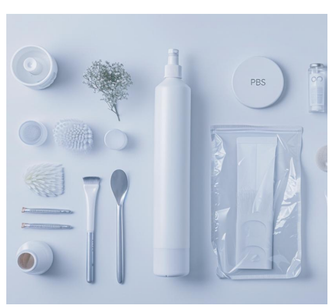
CONSUMER GOODS AND PACKAGING APPLICATION

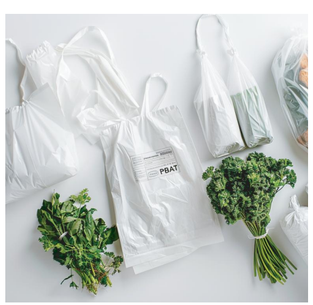
02

PEF、PETG/PCTG and etc.

01

PBAT、PBS、Bio-PBAT、Bio-PBS and etc.





Core Materials:
PBAT、PBS、Bio-PBAT、Bio-PBS、PEF、PCTG

Application Scenarios:
Catering Utensils, Daily Necessities, Food Packaging, Luxury Goods Packaging, Cosmetics and so on.

APPLICATION OF FULLY BIODEGRADABLE MULCH FILM

Fully biodegradable mulch refers to a biodegradable film made of biodegradable materials as the main raw material, used to cover the soil surface when planting crops. Fully biodegradable mulch not only has the advantages of traditional polyethylene mulch, but also has the advantages of increasing ground temperature, retaining soil moisture, and inhibiting weeds . It can also be completely biodegraded, which can effectively solve the problem of residual pollution of mulch film. It is of great significance to promote the sustainable development of agriculture and protect the ecological environment.

Good Performance

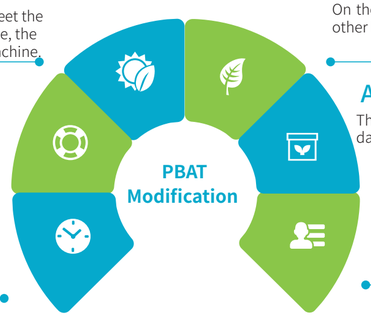
It has good mechanical properties, which can meet the needs of mechanical film laying. At the same time, the mulch film after harvest will not entangle the machine.

Adjustable Thickness

The thickness of the mulch film can be customized according to different regions and crops.

Fully Biodegradable

After the crops are harvested, the mulch film can be directly plowed into the soil without recycling and completely degraded into water, carbon dioxide and inorganic salts, without polluting the soil.



Increase In Yield And Income

On the one hand, it can improve the soil, and on the other hand, the degradation of mulch film can significantly increase the yield of some crops.

Adjustable Degradation Time

The induction period is adjustable from 30 to 150 days to better meet the degradation needs of different crops in different regions.

Personalized Customization

Crop-specific biodegradable films can be customized according to different regions and crops.


Rice Mulching


Peanut Mulching


Strawberry Mulching


Potato Mulching


Vegetable Mulching


Tobacco Mulching


Garlic Mulching


White Radish Mulching


Tomato Mulching


Cabbage Mulching


Cauliflower Mulching


Celery Mulching

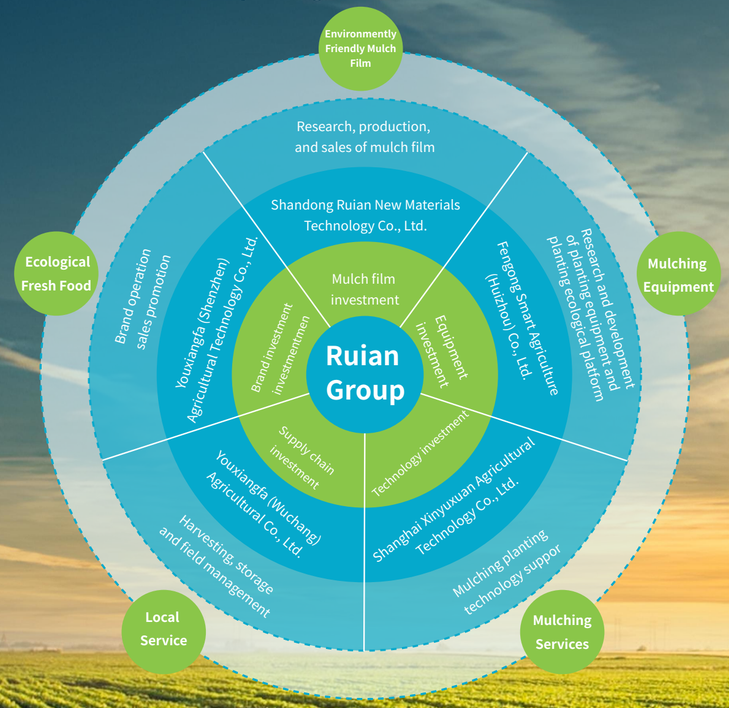

Corn Mulching


Chili Pepper Mulching


Sweet Potato Mulching

INTEGRATED AGRICULTURAL SERVICE

Ruian Group is currently the only technology-innovative enterprise with a full industrial chain layout that integrates R&D production, agricultural machinery R&D, agricultural supporting services, and sales of agricultural products . Since October 2022, Ruian Group has achieved sales of over 5,000 tons of modified mulch materials and finished mulch products in more than 30 provinces and regions across China, accounting for more than 15% of the national fully biodegradable mulch market .



5000+
Sales volume exceeds 5,000 tons

50+
More than 50 demonstration bases across the country

15%
Occupies more than 15% of the national market share of fully biodegradable mulch films

OTHER APPLICATION

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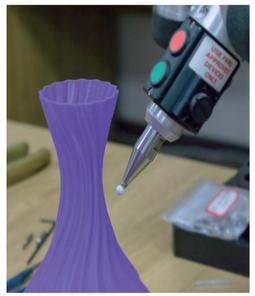


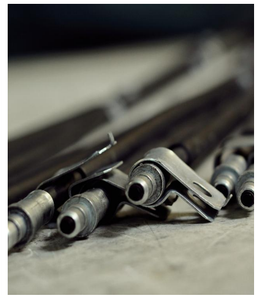
3D printing materials

Modern medical materials

Clothing and Home Furnishings & Decor

Sports equipment

Figures and toys



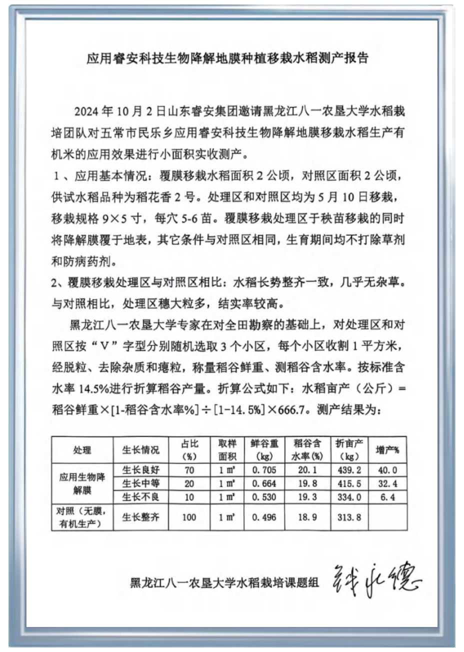
Pipes and wires

INDUSTRIALIZATION DEMONSTRATION BASE

Gregeo 睿安科技 ×

Ruian Group × Bayi Agricultural University Experimental case of rice covered with film in Minle Township, Wuchang City

Cooperating with the rice cultivation team of Heilongjiang Bayi Agricultural University, a rice mulching biodegradable mulch planting technology demonstration area was established in Minle Township, Wuchang City, with remarkable application results. The actual test results show that this rice mulching planting technology can effectively avoid the use of herbicides, save water and fertilizer, and increase production and efficiency.



应用睿安科技生物降解地膜种植移栽水稻测产报告

2024 年 10 月 2 日山东睿安集团邀请黑龙江八一农垦大学水稻栽培团队对五常市民乐乡应用睿安科技生物降解地膜移栽水稻生产有机米的应用效果进行小面积实收测产。

1、应用基本情况：覆膜移栽水稻面积 2 公顷，对照区面积 2 公顷，供试水稻品种为稻花香 2 号。处理区和对照区均为 5 月 10 日移栽，移栽规格 9×5 寸，每穴 5-6 苗。覆膜移栽处理区于秧苗移栽的同时将降解膜覆于地表，其它条件与对照区相同，生育期间均不打除草剂和防病药剂。

2、覆膜移栽处理区与对照区相比：水稻长势整齐一致，几乎无杂草。与对照相比，处理区穗大粒多，结实率较高。

黑龙江八一农垦大学专家在对全田勘察的基础上，对处理区和对照区按“V”字型分别随机选取 3 个小区，每个小区收割 1 平方米，经脱粒、去除杂质和瘪粒，称量稻谷鲜重、测稻谷含水率。按标准含水率 14.5%进行折算稻谷产量。折算公式如下：水稻亩产（公斤）= 稻谷鲜重×[1-稻谷含水率%]÷[1-14. 5%]×666.7。测产结果为：

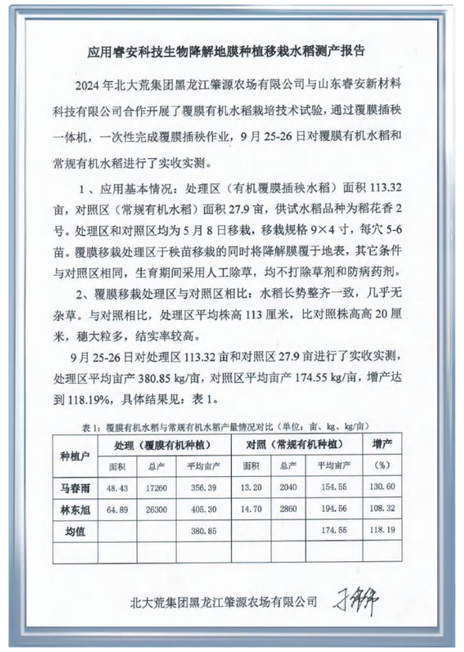
处理	生长情况	占比（%）	取样面积	鲜谷重（kg）	稻谷含水率（%）	折亩产（kg）	增产%
应用生物降解膜	生长良好	70	1 m²	0. 705	20. 1	439. 2	40. 0
	生长中等	20	1 m²	0. 664	19. 8	415. 5	32. 4
	生长不良	10	1 m²	0. 530	19. 3	334. 0	6. 4
对照（无膜，有机生产）	生长整齐	100	1 m²	0. 496	18. 9	313. 8	

黑龙江八一农垦大学水稻栽培课题组

Gregeo 睿安科技 × 北大荒集团 BEIDAHUANG GROUP

Ruian Group × Beidahuang Group Experilental Case In Heilongjlang Zhaoyuan Farm

Starting from 2023, we cooperated with Beidahuang Agricultural Reclamation Group Zhaoyuan Farm Co., Ltd. to carry out experiments on new organic rice mulching cultivation technology. Through the organic combination of customized fully biodegradable mulch film and new integrated planting equipment for mulching and transplanting, we can save huge manual weeding costs and reduce irrigation water input while achieving significant yield increases, with the highest yield increase of 118.19% recorded in actual measurements.



应用睿安科技生物降解地膜种植移栽水稻测产报告

2024 年北大荒集团黑龙江肇源农场有限公司与山东睿安新材料科技有限公司合作开展了覆膜有机水稻栽培技术试验，通过覆膜插秧一体机，一次性完成覆膜插秧作业，9 月 25-26 日对覆膜有机水稻和常规有机水稻进行了实收实测。

1、应用基本情况：处理区（有机覆膜插秧水稻）面积 113.32 亩，对照区（常规有机水稻）面积 27.9 亩，供试水稻品种为稻花香 2 号。处理区和对照区均为 5 月 8 日移栽，移栽规格 9×4 寸，每穴 5-6 苗。覆膜移栽处理区于秧苗移栽的同时将降解膜覆于地表，其它条件与对照区相同，生育期间采用人工除草，均不打除草剂和防病药剂。

2、覆膜移栽处理区与对照区相比：水稻长势整齐一致，几乎无杂草。与对照相比，处理区平均株高 113 厘米，比对照株高高 20 厘米，穗大粒多，结实率较高。

9 月 25-26 日对处理区 113.32 亩和对照区 27.9 亩进行了实收实测，处理区平均亩产 380.85 kg/亩，对照区平均亩产 174.55 kg/亩，增产达到 118.19%，具体结果见：表 1。

表 1：覆膜有机水稻与常规有机水稻产量情况对比（单位：亩、kg、kg/亩）

种植户	处理（覆膜有机种植）			对照（常规有机种植）			增产
	面积	总产	平均亩产	面积	总产	平均亩产	（%）
马春雨	48. 43	17260	356. 39	13. 20	2040	154. 55	130. 60
林东旭	64. 89	26300	405. 30	14. 70	2860	194. 56	108. 32
均值			380. 85			174. 55	118. 19

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