

鹤壁市人元生物科技发展有限公司

Hebi Renyuan Biotechnology Development Co., Ltd.

企业简介

Company Profile

一、企业基本情况

I. Company Overview

鹤壁市人元生物科技发展有限公司成立于 2005 年，二十年来始终秉承“创新强农、绿色兴农”理念，坚持致力于土壤与水资源污染生态修复、农业有机废弃物资源化综合利用行业，全力推进农业现代化发展进程，目前已发展成为一家农业微生物菌剂、生物有机肥、有机肥生产设备、植保机械及农林机械研发、生产、销售与推广应用服务为一体的农业产业化科技型高新技术企业。

Hebi Renyuan Biotechnology Development Co., Ltd. was established in 2005. For twenty years, the company has upheld the principle of "Strengthening agriculture through innovation and advancing agriculture through green development." It focuses on ecological remediation of contaminated soil and water and the recovery and utilization of agricultural organic waste to support agricultural modernization. It is a high-tech enterprise integrating R&D, manufacturing, sales, technical promotion and application services for agricultural microbial inoculants, bio-organic fertilizers, organic fertilizer production equipment, plant protection machinery, and agricultural and forestry machinery.

历经二十年的创新发展，目前人元生物已发展成为横跨农业微生物菌剂、有机肥、有机肥生产设备、植保机械四大板块的集团公司，先后获得有机物料腐熟剂、有机肥、生物有机肥 14 项肥料登记证书；

Over two decades of innovation, Renyuan Biotechnology has grown into a group with four principal business segments: agricultural microbial inoculants, organic fertilizers, organic fertilizer production equipment, and plant protection

machinery. The company has obtained 14 fertilizer registration certificates for organic material decomposition agents, organic fertilizers and bio-organic fertilizers.

被认定为“国家高新技术企业”、“国家绿色工厂”、“国家绿色供应链管理企业”、“农业产业化国家重点龙头企业”、“国家工业企业知识产权运用试点企业”、“国家科技型中小企业”、

Its national designations include High-tech Enterprise, Green Factory, Green Supply Chain Management Enterprise, National Key Leading Enterprise in Agricultural Industrialization, Pilot Industrial Enterprise for Intellectual Property Utilization, and Science and Technology-based SME.

“河南省创新型试点企业”、“河南省节能减排科技创新示范企业”、“河南省科技小巨人企业”、“河南省农业产业化联合体”、“河南省技术创新示范企业”、“河南省专精特新中小企业”、“河南省绿色技术创新示范企业”、“河南省服务型制造示范企业”、“河南省知识产权优势企业”、“河南省数字化能碳管理中心”、“河南省农业固体废物（畜禽粪污和秸秆）高值化综合利用工业性试验验证平台”、“河南省重点农业产业化服务组织”、“河南省守合同重信用企业”、

Its Henan provincial designations include Innovative Pilot Enterprise; Demonstration Enterprise for Technological Innovation in Energy Conservation and Emission Reduction; Science and Technology "Little Giant" Enterprise; Agricultural Industrialization Consortium; Demonstration Enterprise for Technological Innovation; Specialized, Refined, Distinctive and Innovative SME; Demonstration Enterprise for Green Technology Innovation; Demonstration Enterprise for Service-oriented Manufacturing; Enterprise with Intellectual Property Advantages; Digital Energy and Carbon Management Center; Industrial Pilot Testing and Validation Platform for High-value Comprehensive Utilization of

Agricultural Solid Waste (Livestock and Poultry Manure and Crop Straw); Key Agricultural Industrialization Service Organization; and Enterprise Honoring Contracts and Maintaining Credit.

“鹤壁市知识产权示范企业”、“鹤壁市创新创业团队”；拥有专利 63 项，其中发明专利 20 项、实用新型专利 40 项、外观设计专利 3 项；起草鹤壁市地方标准 2 项、团体标准 1 项、企业标准 2 项。

At municipal level, it has been recognized as a Hebi Intellectual Property Demonstration Enterprise and a Hebi Innovation and Entrepreneurship Team. It holds 63 patents: 20 invention patents, 40 utility model patents and 3 design patents. It has drafted 2 Hebi local standards, 1 association standard and 2 enterprise standards.

公司“土壤有机质提升关键技术研发与推广”项目荣获 2016 年度鹤壁市科学技术奖进步壹等奖，“农作物秸秆高效快速腐熟产品研制及示范应用”项目荣获 2017 年度河南省科学技术进步奖叁等奖，“烟田碳氮调节提高烟叶质量关键技术研究与应用”项目荣获 2019 年度河南省科学技术进步奖叁等奖，“微生物酸性土壤调理剂”项目荣获 2022 年度第六届鹤壁市科技创新创业大赛成长组三等奖。

The company's project "Research, Development and Promotion of Key Technologies for Increasing Soil Organic Matter" received First Prize in the 2016 Hebi Science and Technology Progress Awards. "Development and Demonstration of Products for Efficient and Rapid Decomposition of Crop Straw" received Third Prize in the 2017 Henan Science and Technology Progress Awards. "Research and Application of Key Technologies for Regulating Carbon and Nitrogen in Tobacco Fields to Improve Tobacco Leaf Quality" received Third Prize in the 2019 Henan Science and Technology Progress Awards. The "Microbial Conditioner for Acidic Soil" project received Third Prize in the Growth Enterprise Category of the Sixth Hebi Science and Technology Innovation and Entrepreneurship Competition in 2022.

二、科研条件建设情况

II. Research and Development Facilities

1、研发平台建设情况

1. Research and Development Platforms

公司已建立国家博士后科研工作站、河南省企业技术中心、河南省微生物菌剂工程技术研究中心、河南省农业废弃物资源化综合利用工程研究中心、河南省污水污泥处理与资源化利用产业技术创新战略联盟、河南省配方有机肥工程技术研究中心、河南省农林元素集成物联网工程技术研究中心、鹤壁市农业微生物菌剂重点实验室等科研平台。

The company has established the following research platforms: a National Postdoctoral Research Station; the Henan Enterprise Technology Center; the Henan Engineering Technology Research Center for Microbial Inoculants; the Henan Engineering Research Center for Comprehensive Resource Utilization of Agricultural Waste; the Henan Strategic Alliance for Industrial Technology Innovation in Wastewater and Sludge Treatment and Resource Utilization; the Henan Engineering Technology Research Center for Formulated Organic Fertilizers; the Henan Engineering Technology Research Center for Integrated Internet of Things Applications in Agriculture and Forestry; and the Hebi Key Laboratory for Agricultural Microbial Inoculants.

研发平台建筑面积 5000 平方米，共两层，一层为试验基地，包括液体及固体微生物菌剂发酵培养试验车间；二层为研发与检测中心，在承担科技创新工作的同时为全国有机肥生产厂家提供有机肥发酵工艺与检测技术培训及微生物菌剂、有机肥样品检测服务。

These research facilities occupy 5,000 square meters over two floors. The first floor houses the pilot testing facility, including workshops for fermentation and cultivation trials with liquid and solid microbial inoculants. The second floor

houses the R&D and testing center. It develops new technologies, trains organic fertilizer manufacturers across China in fermentation and testing techniques, and tests microbial inoculant and organic fertilizer samples.

2、研发设施条件情况

2. Research Facilities and Equipment

研发平台拥有不锈钢液体发酵系统、旋转蒸发仪、双层空气浴恒温摇床、原子吸收分光光度计等各类研发、检测性设备及仪器 80 余台（套），价值 1000 余万元；试验场地位于温家沟、狮跑泉村，占地面积 30000 平方米，建有自动化农用微生物菌剂生产中试流水线、粉状及颗粒状生物有机肥生产中试流水线。

The platforms have over 80 research and testing instruments and equipment items worth more than RMB 10 million. They include stainless steel liquid fermentation systems, rotary evaporators, double-deck air-bath temperature-controlled shakers, and atomic absorption spectrophotometers. The experimental sites are located in Wenjiagou and Shipaoquan villages and cover 30,000 square meters. They include automated pilot production lines for agricultural microbial inoculants and pilot production lines for powdered and granular bio-organic fertilizers.

3、科研队伍建设情况

3. Research and Development Team

公司拥有各类研发人员 36 人，其中博士 5 名，硕士 9 名，本科 17 名，涉及发酵工程、生物技术、作物营养生理、农业昆虫与害虫防治、环境工程、自动化控制等诸多专业。

The company has 36 research and development personnel, including 5 with doctoral degrees, 9 with master's degrees and 17 with bachelor's degrees. Their expertise spans fermentation engineering, biotechnology, crop nutritional physiology, agricultural entomology and pest control, environmental engineering, automation and control, and other disciplines.

三、对外科技开放合作情况

III. External Scientific and Technological Cooperation

公司联合郑州大学、河南省农业科学院、中国市政工程华北设计研究总院有限公司、中持水务股份有限公司等企业、高等院校及科研院所联合组建河南省污水污泥处理与资源化利用产业技术创新战略联盟。联盟的核心任务是以推进河南省污水污泥处理与资源化利用技术的创新和产业化为目标，建立产业上下游、产学研信息、知识产权等资源共享机制，建立与政府沟通的渠道及人才培养、合作的平台，推动标准、评价、质量检测体系的建立，促进联盟成员的自身发展，提升河南省污水污泥处理资源化利用技术水平。

Together with Zhengzhou University, the Henan Academy of Agricultural Sciences, North China Municipal Engineering Design & Research Institute Co., Ltd., CSD Water Service Co., Ltd., and other enterprises, universities and research institutes, the company established the Henan Strategic Alliance for Industrial Technology Innovation in Wastewater and Sludge Treatment and Resource Utilization. The alliance's core mission is to advance innovation and industrial application of wastewater and sludge treatment and resource utilization technologies in Henan. The alliance enables resource sharing across the industrial chain, including information and intellectual property from collaboration among industry, universities and research institutes. It creates channels for government communication and platforms for talent development and cooperation. It promotes standards, evaluation and quality testing, supports its members, and strengthens Henan's capabilities in wastewater and sludge treatment and resource utilization.

公司与华中农业大学、鹤壁市畜牧工作站联合承担鹤壁市 2017 年度鹤壁市重大科技专项项目，项目名称为“畜禽粪污无害化处理及资源化循环利用关键技术研发与示范”，开展生物除臭技术、养殖污水零排放技术、养殖固体粪污好氧发酵堆肥技术等关键技术研发，最终将形成一套完整的可复制的落地性强的技术推广模式。

The company, Huazhong Agricultural University and the Hebi Animal Husbandry Station jointly undertook a 2017 Hebi Major Science and Technology Special Project, "Research, Development and Demonstration of Key Technologies

for Harmless Treatment and Circular Resource Utilization of Livestock and Poultry Manure." The project develops key technologies for biological deodorization, zero discharge of livestock wastewater, and aerobic fermentation and composting of solid livestock manure. Its ultimate goal is a comprehensive, practical and replicable model for deploying these technologies.

公司与郑州大学联合开发“超高温污泥减量化菌剂研发与试制”，实现了对物料水分要求范围宽，55%-70%均可，升温快速 48 小时可达 70℃以上，快速达到无害化处理，缩短发酵周期 3-5 天，有效活菌数 ≥ 100 亿/g，纤维素酶 ≥ 50 U/g，蛋白酶活 ≥ 50 U/g，水分 $\leq 20\%$ ，pH 值 6.0-8.0。

Together with Zhengzhou University, the company developed and trial-produced an ultra-high-temperature microbial inoculant for sludge reduction. It accommodates a broad feedstock moisture range of 55%-70%. The material rapidly heats to above 70°C within 48 hours, rapidly completing the sanitization process and shortening the fermentation cycle by 3-5 days. The product has a viable microbial count of at least 10 billion/g, cellulase activity of at least 50 U/g, protease activity of at least 50 U/g, moisture content of no more than 20%, and a pH of 6.0-8.0.

公司与华中农业大学联合承担鹤壁市 2022 年度鹤壁市重大科技专项项目，项目名称为“作物系统抗性与增产双效生物制剂研发与应用”，开展提高植物系统性抗性的活性物质与有益微生物的筛选及其组合效应、植物系统性抗性形成的营养补充剂及其应用效果等关键技术研发，最终将形成一套完整的可复制的落地性强的技术推广模式。

Together with Huazhong Agricultural University, the company undertook a 2022 Hebi Major Science and Technology Special Project, "Development and Application of Dual-action Biological Preparations for Crop Systemic Resistance and Increased Yield." The project focuses on screening active substances and beneficial microorganisms that enhance plant systemic resistance and evaluating their combined effects. It also develops nutritional supplements that support plant systemic resistance and assesses their application performance. Its ultimate goal is a comprehensive, practical and replicable model for deploying these technologies.

四、企业未来三年发展规划

IV. Development Plan for the Next Three Years

1、未来，企业将继续紧紧围绕绿色农业、生态农业领域深耕细作，在鹤壁市完成 10 万吨微生物肥料、5000 台（套）农业废弃物资源化利用高端技术装备项目建设；通过与规模化养殖企业合作在全国建设大型微生物肥料生产基地 15 个，生产能力达到 300 万吨/年，在全国有机肥料市场领域占有率达到 10%以上，完成国家实验室 CNAS 认证。

1. The company will continue to focus on green and ecological agriculture. In Hebi, it plans to complete a project for the production of 100,000 tonnes of microbial fertilizers and 5,000 units or sets of advanced equipment for agricultural waste resource utilization. In partnership with large livestock enterprises, it will establish 15 large microbial fertilizer production bases across China. Their combined production capacity will reach 3 million tonnes per year. The company aims to achieve more than a 10% share of China's organic fertilizer market and obtain CNAS laboratory accreditation.

2、依托国家农业微生物重点实验室，与华中农业大学积极开展磋商洽谈，联合组建“河南省农业生态循环工程重点实验室”及“鹤壁市农业微生物工程研究院”，主要研究方向：（1）农业生态环境微生物治理与修复工程；（2）农业微生物发酵工程与废弃物资源化综合利用；（3）分子微生物学与基因工程。

2. Drawing on the National Key Laboratory of Agricultural Microbiology, the company is actively consulting and negotiating with Huazhong Agricultural University to jointly establish the Henan Key Laboratory of Agroecological Circular Engineering and the Hebi Research Institute of Agricultural Microbial Engineering. The principal research areas will be: (1) microbial treatment and remediation engineering for the agricultural ecological environment; (2) agricultural microbial fermentation engineering and comprehensive resource utilization of waste; and (3) molecular microbiology and genetic engineering.

3、依托河南科技大学农业装备工程学院，联合组建“农业废弃物资源化综合利用高端技术装备”技术创新中心，将研发作为产业、将技术作为产品，致力于源头技术创新、实验室成果中试熟化、应用技术开发升值。

3. Together with the College of Agricultural Equipment Engineering at Henan University of Science and Technology, the company will establish a technology innovation center for advanced equipment for comprehensive resource utilization of agricultural waste. The center will commercialize R&D and technology, focusing on original innovation, pilot-scale development and maturation of laboratory results, and the development and value enhancement of applied technologies.

4、扩大企业横向覆盖面，在农林植保智能物联网、水肥一体化、农业机械装备方面深耕细作，集成农业投入品模块，助力农业现代化发展。

4. The company will expand its business and further develop intelligent Internet of Things systems for agricultural and forestry plant protection. It will also develop integrated irrigation and fertilization systems, agricultural machinery and equipment. By bringing agricultural inputs together, it will support agricultural modernization.

5、加大企业研发投入力度。产品，特别是新产品才是企业领跑行业风向标的根本，我们将积极吸纳高层次人才、完善研发平台建设，不断提高研发水平，以建立国家级企业技术中心为目标，发挥企业在农业废弃物资源化利用、土壤亚健康治理、土壤污染治理方面的优势，以博士后科研工作站为基础，最终建成农业生态工程研究院，培养更多的专业人才。

5. The company will increase investment in research and development. Product innovation is central to the company's industry leadership. The company will actively recruit high-level talent, improve its research platforms and continuously strengthen its research capabilities, with the goal of establishing a National Enterprise Technology Center. It will build on its strengths in agricultural waste resource utilization, restoration of degraded soil and remediation of contaminated soil. Based on its Postdoctoral Research Station, it ultimately aims to establish an Institute of Agroecological Engineering and train more specialist personnel.