# 线上非洲区域菌草技术能力建设和支持可持续农业和可持续发展目标工作坊

# Online African Regional Capacity Building Workshop on Juncao Technology and its Support to Achieve Sustainable Agriculture and the SDGs

为了消除贫困、保护森林资源，福建农林大学林占熇研究员于 1983 年开展用野生和人工种植的草本植物替代阔叶树栽培食药用菌的研究，1986 年发明了菌草技术。

With an aim to eradicate rural poverty and protect the forest resources, Professor Lin Zhanxi of Fujian Agriculture & Forestry University of China in 1983 carried out research on the cultivation of edible and medicinal mushrooms by using wild grasses and cultivated herbaceous plants instead of broad-leaf trees. In 1986, he successfully invented the Juncao Technology.

目前，已筛选出五节芒、芦竹、狼尾草属品种等 46 种菌草，可用于人工栽培平菇、杏鲍菇、双孢蘑菇、金针菇、灵芝等 54 种食药用菌，并加工成高附加值的功能性食品，菌草菌糟可加工成

功能性饲料和饲料添加剂,实现了草、菌、畜循环生产。

At present, 46 species of Juncao grass like *Miscanthus floridulus*, *Arundo donax,* and *the Pennisetum family* have already been selected as main materials for cultivation of 54 kinds of edible and medicinal mushrooms such as *Pleurotus ostreatus, Pleurotus eryngii, Agaricus bisporus, Flammulina velutipes, and Ganoderma lucidum* etc. Mushrooms can be processed into highly value-added tonic food products, and even the spent substrates can still be processed into functional feed and feed additives. It creates a positive production cycle of grass, mushroom, and livestock.

菌草技术指的是利用菌草作为原料，通过真菌的分解、促进和共生的作用，生产菌菇、功能性食品、饲料、肥料、生物质能源如燃料、沼气等，生物材料如纸浆、纤维板等，并应用于生态环境保护和治理的技术。

Juncao Technology refers to the techniques that utilize Juncao grass as raw material, through the decomposition, promotion and symbiosis functions of fungi, to produce mushrooms, functional food, feed, fertilizer, biomass energy, biological materials, and to apply in environmental protection and

ecological treatment.

菌草技术投入少、见效快，效益高。农户种植菌袋 7-10 天后就有收入。利用 10 平方米土地可年产 1200 公斤鲜菇。面积为 1 公顷的菌草菇农场年产值约 30 万美元，可提供至少 30 个工作岗位。

Juncao technology has the advantages of low investment, quick returns, and high economic benefits. Farmers can generate income in 7 to 10 days after planting mushroom substrate packs, and 1,200 kilos of fresh mushroom can be produced annually in a land of 10 square meters. For a 1 hectare Juncao mushroom farm, the annual output value is about US$300,000 and provides at least 30 job opportunities.

部分菌草品种是优质饲料来源，如巨菌草粗蛋白含量达 8-16%，每公顷年产鲜草 450 吨，可饲喂 30 头牛或 300 只羊。

Some of the Juncao grass species are high-quality feed sources. For example, the crude protein content of the Jujuncao grass (*Giant Juncao grass*) contains 8-16%, and the annual output of fresh grass is 450 tons per hectare, which is

sufficient to feed 30 cattle or 300 sheep.

菌草也用于治理水土流失、荒漠化、盐碱地，以及修复矿山等。在中国的黄河流域、青藏高原及干旱和半干旱地区，一些菌草品种被作为先锋植物。1 个节的巨菌草种植 100 天后，生长约 10-20 个分蘖，其根系可固沙约 15 平方米。在卢旺达、莱索托等地利用菌草治理水土流失，与当地种植玉米地相比，减少土壤流失量 97%以上，减少水流失量 80%以上。

Juncao grass has been also applied to ecological management, such as soil erosion control, desertification control, saline-alkali soil management, and mine rehabilitation. In the Yellow River basin and Qinghai-Tibet Plateau and some arid and semi-arid areas of China, a few Juncao grass species are applied as pioneer plants. After 100 days, one node of Jujuncao grass will grow into a clump with about 10-20 tillers, and the root system can fix sand about 15 square meters. In Rwanda and Lesotho, the use of Juncao grass to control soil erosion, compared with the local fields of corn, reduced the soil loss by more than 97%, and reduced the water loss by more than 80%.

在斐济、巴新、卢旺达、莱索托、南非等 13 个国家建立的菌草技术示范基地，让缺乏土地资源、教育机会和生产技能的农户有了增加收入的新途径。

Juncao Technology Demonstration Bases established in 13 countries including Fiji,Papua New Guinea, Rwanda, Lesotho, South Africa and others, have enabled farmers who lacked land resources, educational opportunities, and production skills to have new ways to increase their income.

福建农林大学已传播菌草技术到 106 个国家。从 1995 年至今，福建农林大学已举办了 202 期国际培训班；举办了 16 届国际研讨会，为 21 名留学生提供菌草专业奖学金。

Fujian Agriculture and Forestry University （FAFU）has disseminated Juncao Technology in 106 countries. Since 1995, FAFU has conducted 202 international training courses; held 16 international symposiums, provided 21 international postgraduate students scholarships for the Juncao technology.

在福建农林大学国家菌草中心的培养下，在斯里兰卡、尼日利亚、卢旺达、埃及、巴西等国家已涌现了一批菌草企业家和科研人才，他们正在为各国发展菌草产业起到积极与重要的作用。

A number of Juncao entrepreneurs and research talents from Sri Lanka, Nigeria, Egypt, Brazil and many other countries, who have been trained in FAFU National Juncao Research Center, are playing an active and important role in the

development of the Juncao industry in their respective countries.

2017 年，菌草技术被列为中国——联合国和平与发展基金该基金的重点项目，5 月 26 日在纽约联合国总部正式启动。2019 年 4 月 18 日，菌草技术高级别会议在纽约举行，第 73 届联合国大会主席埃斯皮诺萨在致辞中谈到：通过菌草技术，中国给我们讲了一个伟大的故事，这个故事现在已经分享到 100 多个受益于这一创新的国家。在福建省点燃的火花已显示了一个创新的潜力，如果善加培育且部署得当，就能改变并改善世界各地人们的生活状况。

In 2017, Juncao technology is promoted of China-UN Peace and Development Trust Fund as a priority project of the fund. On 26th May, it was officially launched at the UN New York headquarters. On 18th April 2019, the High Level Meeting on Juncao Technology was held in New York. In her Statement, H.E. Mrs. María Fernanda Espinosa Garcés, President of the 73rd Session of the UN General Assembly, said: through Juncao technology, China has a great story to tell – a story now shared with over 100 countries who have benefited from this innovation. The spark lit in Fujian Province has shown the potential of a single innovation – if nurtured and deployed wisely – to change lives and improve livelihoods across the world.

菌草技术源自中国，但它服务于全世界。我们将坚持“发展菌草

业，造福全人类”的宗旨，为实现 2030 年可持续发展目标做出贡献！

The Juncao Technology originates in China, but it serves the whole of humanity. We are committed to the aim of ‘Develop Juncao Industry to Benefit All Humankind” and devote ourselves to achieve Sustainable Development Goals.