



ICAR - DIRECTORATE OF CASHEW RESEARCH

Puttur - 574 202, Karnataka

RESEARCH FOR A PROSPEROUS CASHEW SECTOR

*Cashew
for a Better
Tomorrow*

ANNUAL HIGHLIGHTS 2025 - 26



RESEARCH



INNOVATION



FARMER
EMPOWERMENT



SUSTAINABLE
GROWTH



*From Research
to Real Impact*



PREFACE

ICAR - Directorate of Cashew Research (ICAR-DCR), the national centre for cashew research and headquarters of the AICRP on Cashew, continued to advance climate resilient production, varietal improvement, crop protection, value addition, mechanization and farmer-oriented technologies during 2025-26.

Through its network of 14 AICRP centres, ICAR-DCR strengthened the translation of research into practical solutions for cashew growers across diverse regions of the country.

These highlights represent our continuing journey towards a productive, resilient, sustainable and globally competitive Indian cashew sector.

2025-26 HIGHLIGHTS



Nethra Samruddhi



03

DUS Certification by PPVFRA



06

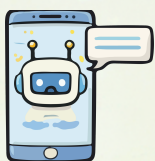
Technologies certified by ICAR



Nethra cashew Special



Climate resilience and Genomics



Cashew connect Chatbot



04

Value added products



01

Patents granted



07

Copyrights granted



03

Designs granted

I sincerely appreciate the contributions of our scientists, technical and supporting staff, AICRP centres, farmers and collaborating partners in making these achievements possible.

J DINAKARA ADIGA
Director,
ICAR-DCR, Puttur

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ICAR-Directorate of Cashew Research AT A GLANCE

Driving Cashew Science from Research to Real-World Impact



1

**Research
Institute**

Estd. at 1986



14

**AICRP
Centres**

Research for Diverse Agro-
climatic Regions



AICRP ON CASHEW

A Strong Network
for Stronger Impact

RESEARCH FOR A STRONGER CASHEW SECTOR



Crop Improvement



Crop Management



Crop Protection



Post-Harvest Technology



Transfer of Technology



**Achieve Self sufficiency in
Raw Cashew nut production**



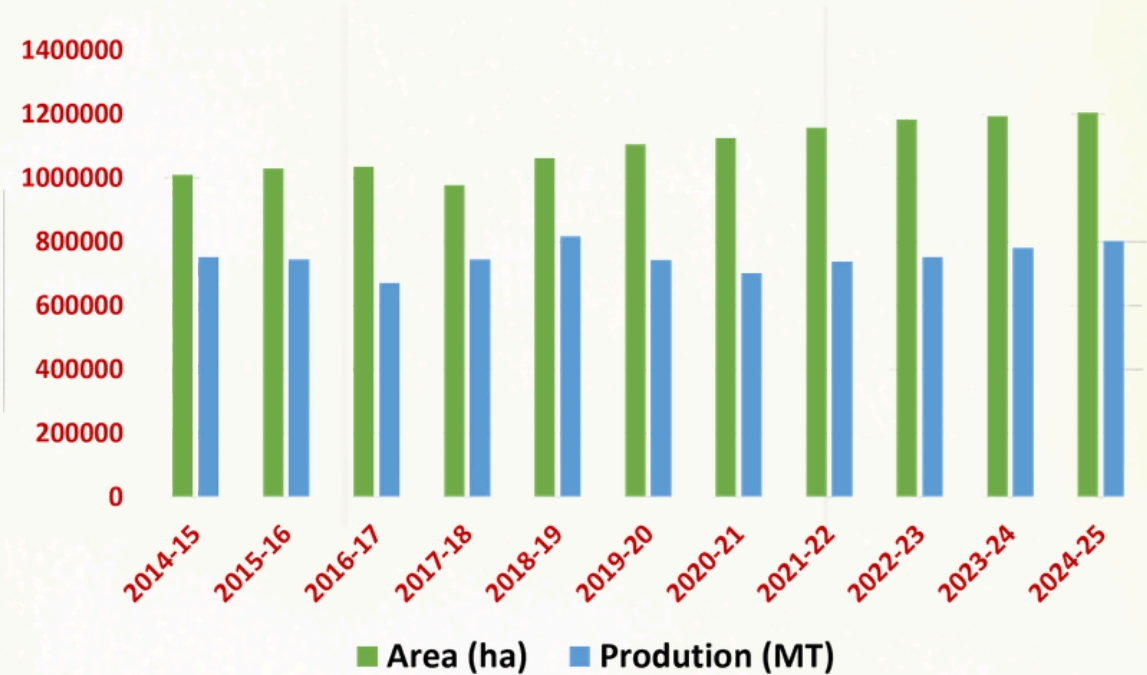
**Overall growth through
enhancement of production**



From Harvest to Global Markets

The Indian Cashew Story

INDIAN CASHEW • GLOBAL REACH • BRIGHTER TOMORROW



Indian Cashew
Global Delight


16%
of global cashew
production
India - 2nd largest
producer of RCN


5-7%
annual growth in
domestic demand
One of the largest consumers
of cashew kernels


3,900+
processing units
in India
Organised and
unorganised sectors


16.43
lakh MT per year
processing capacity


100+
countries
worldwide
Export Market UAE, Japan,
Netherlands, Saudi Arabia, USA



HARVEST

PROCESSING

VALUE ADDITION

GLOBAL MARKETS



REFLECTION ON 2025-26

A year of research, innovation and
technology translation in cashew

*Research for a
Stronger Cashew
Tomorrow*



RESEARCH & INNOVATION

1

Variety
Developed

6

Varieties
Registered (DUS)

6



Technologies
Certified by ICAR

20

Research papers published



TECHNOLOGY TRANSLATION

14



Technologies
Commercialised

15



Licensing
Agreements Signed

REVENUE GENERATED

₹ 1.82 Cr

Sale of farm produce,
license fee, analytical
fees, income from
internal resource
generation schemes etc.



IP & RECOGNITION

4

Patents
Filed

1

Patent
Granted

7

Copyrights
Filed

7

Copyrights
Granted

2

Designs
Filed

3

Designs
Granted

3

Trademarks
Filed

FARMER OUTREACH



91

Demonstrations
Conducted

35

Trainings
Conducted

1690

Farmers
Reached

2,00,000

Cashew Grafts
Sold



*From Research
to Realist
Livelihood*

CROP IMPROVEMENT

BETTER GENETICS
BRIGHTER
TOMORROW

6

VARIETIES
REGISTERED (DUS)

17

Cashew
varieties under
Drought Evaluation

10

GENOTYPES
CRYOPRESERVED
(*A. occidentale* and
Semecarpus kurzii)

605

GERERMPASM
MAINTAINED

INTERGENERIC
HYBRIDIZATION

S. kurzii × *A.
occidentale*

*Semecarpus
anacardium* – 7
accessions

Mining and expression profiling of
candidate resistance genes for TMB
interaction.

VARIETY DEVELOPED

Nethra samruddhi

- High yielding
- Cluster bearing habit
- High shelling percentage

MAJOR RESEARCH DIRECTIONS



GERMPLASM
CONSERVATION



SPECIAL TRAITS
BREEDING



GENETIC &
MOLECULAR STUDIES



CLIMATE
RESILIENCE



Integrating genetic diversity, conventional breeding and advanced molecular approaches to develop high-yielding, quality-oriented, compact and climate-resilient cashew varieties for future production systems.



Climate Resilience in Cashew

Resilient Germplasm for a Changing Climate

Resilient Cashew for a Sustainable Tomorrow

1 Drought-Tolerance



Stable yield under moisture deficit



Antioxidant defence



Higher osmolytes

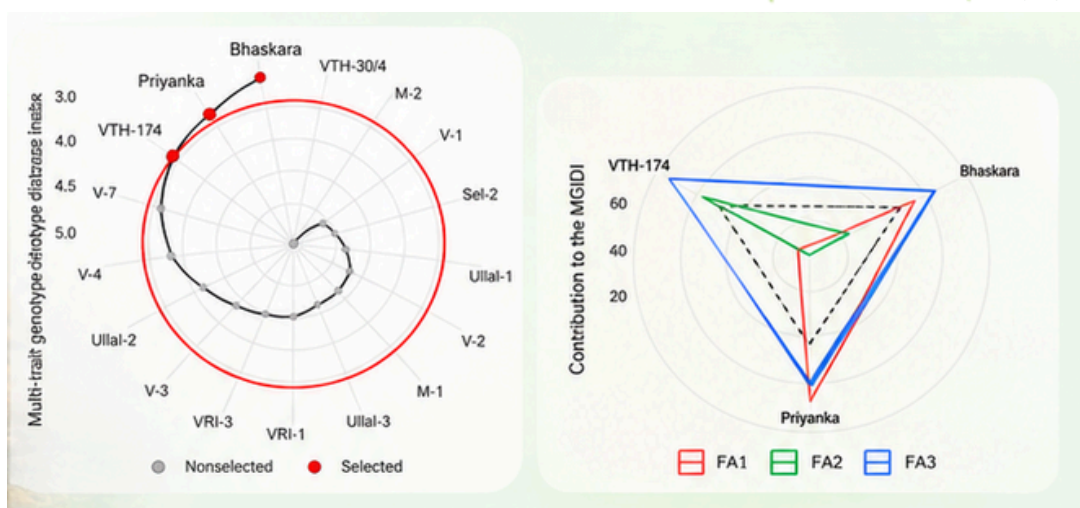


Balanced phytohormones



**Bhaskara
Priyanka**

Elite drought-tolerant varieties



Ranking of varieties based on MGIDI values

2 Salinity Tolerance



Bhaskara

Better tolerance at 250 mM NaCl



Less leaf necrosis



Restricted Na⁺ toxicity



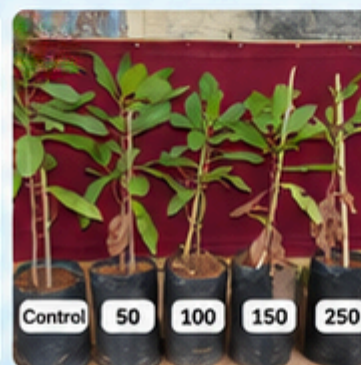
Better K⁺ retention



**Bhaskara
(20 DAT)**



**Madakkathara-2
(20 DAT)**



**Bhaskara
(30 DAT)**

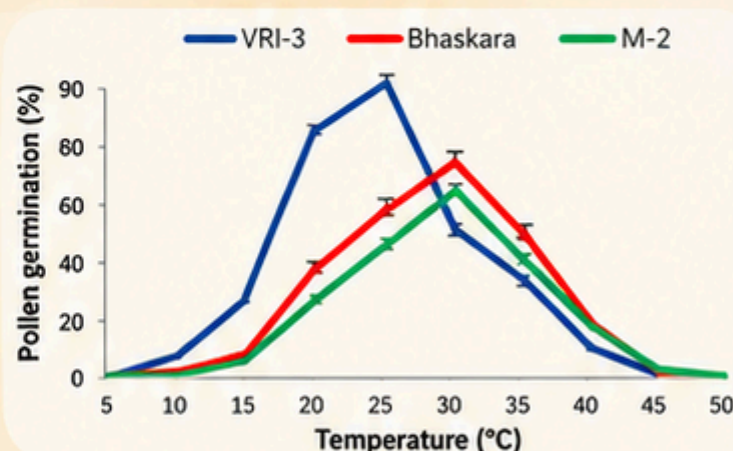


**Madakkathara-2
(30 DAT)**

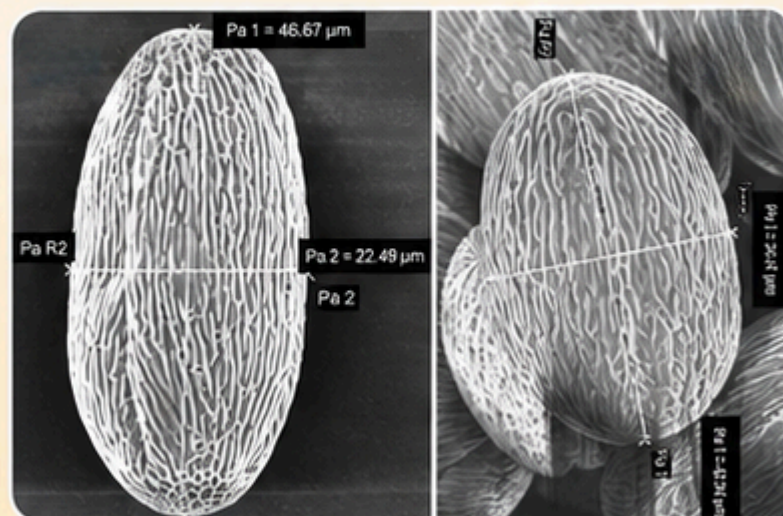
3 Temperature Stress Tolerance



Bhaskara (mid-season) and Madakkathara-2 (late-season) perform better



In-vitro pollen germination in response to temperature



Cashew pollen under SEM



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Puttur, Karnataka

CROP MANAGEMENT

Sustainable practices for higher productivity and
resilient cashew plantations



Healthy Trees
Higher Trees

**Nethra
Cashew Special**
(A FOLIAR NUTRIENT FORMULATION)
Suitable for all cashew varieties

Key features

- Designed Specifically For Cashew Nutritional Requirements
- Compatible With Standard Soil Fertilizer Schedule Of Cashew
- Suitable For Different Cashew Growing Soil Conditions
- Can Be Integrated Into Existing Nutrient Management Practices

Method of Application

- Apply as foliar spray during critical growth stages such as flushing, flowering, and nut development.
- Use recommended dilution and spray volume as advised by extension personnel.
- Ensure uniform coverage of foliage.
- Avoid spraying during peak sunlight or rain.

**30%
INCREASE
IN NUT AND
CASHEW
APPLE YIELD**

ಭಾ.ಕೃ.ಸಂ.ಪ. - ಗೋರು ಸಂಶೋಧನಾ ನಿರ್ದೇಶನಾಲಯ
ಭಾ.ಕೃ.ಅನು.ಪ. - ಕಾಜ್ ಅನುಸंधान निदेशालय
ICAR - DIRECTORATE OF CASHEW RESEARCH

NETHRA CASHEW SPECIAL

CANOPY MANAGEMENT



Optimization of canopy architecture
for enhanced productivity under
UHDP

Pruning treatments with VRI -3 variety

INTERSTOCK EVALUATION



Identification of successful
interstock combination

CARBON SEQUESTRATION



Higher in cashew varieties in the
sequence: Bhaskara > VRI-3 > Ullal-1 >
Vengurla-3



MAJOR RESEARCH DIRECTIONS



Interstock
evaluation



Optimization of canopy
architecture and yield
enhancement



Cashew based
natural farming
system



Growth dynamics
of cashew apple
and nut



Mitigation strategies
for flower drying



Ecofriendly pots
and alternative
media for cashew
grafts

Better Management
Brighter Harvests



ICAR-Directorate of Cashew Research
Puttur, Karnataka

CROP PROTECTION

Decoding pests, pathogens and plant defence

Key research achievements

IPM of Pests and Diseases



MAJOR RESEARCH DIRECTIONS

Whole genome sequencing of *Colletotrichum siamense*

Pathogen of anthracnose disease



Cashew stem and root borer

Heterorhabditis indica induced higher mortality of bait insect than *Steinernema carpocapsae* @150 DAT. High organic carbon increased EPN survival (> 150 days) and virulence.



Tea mosquito bug

Semiochemical approach using sex pheromones

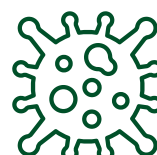


Pest diversity

Species complex of thrips
- 29 species documented



Ecofriendly IPM strategies
for cashew pests



Unravelling Cashew Diseases



Understanding the TMB-Disease Complex

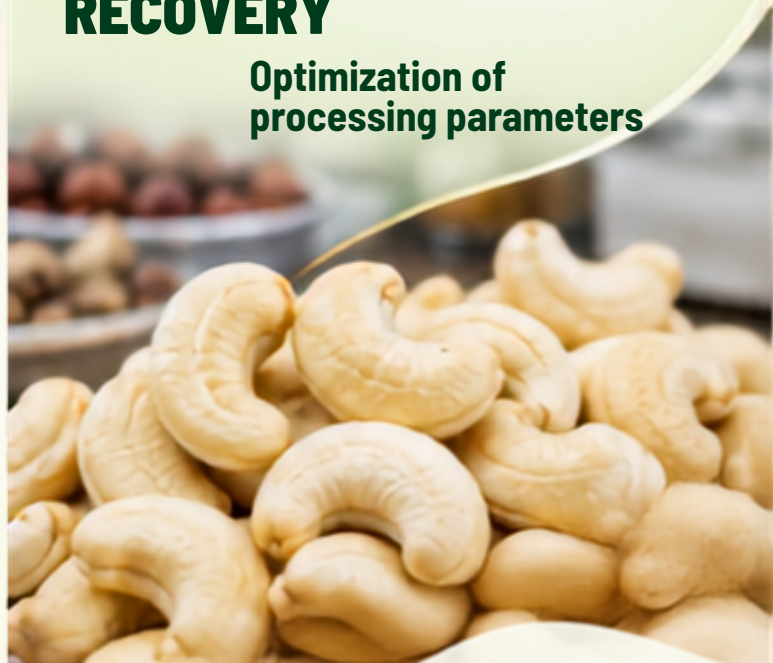
Predominant pathogens associated with TMB-infested cashew shoots are *Pestalotiopsis* spp., *Colletotrichum* spp., and *Lasiodiplodia* spp.

POST-HARVEST TECHNOLOGY

Unlocking Value Beyond the Harvest

WHOLE KERNEL RECOVERY

Optimization of
processing parameters



SHELF-LIFE ENHANCEMENT & FUNCTIONAL FOODS

Extending cashew apple
usability



VALUE-ADDED PRODUCTS



CASHEW APPLE
JAGGERY



CASHEW SPROUTS
HEALTHY BITES



CASHEW
HERBAL TEA



CASHEW APPLE
MILK DELIGHT



ICAR – DIRECTORATE OF CASHEW RESEARCH

TRANSFER^{of} TECHNOLOGY

From Knowledge to Action, From Skills to Impact



81

DRONE
DEMONSTRATIONS



9

FLTDS



1

DEMONSTRATION
ON CANOPY
MANAGEMENT



35

TRAININGS
CONDUCTED



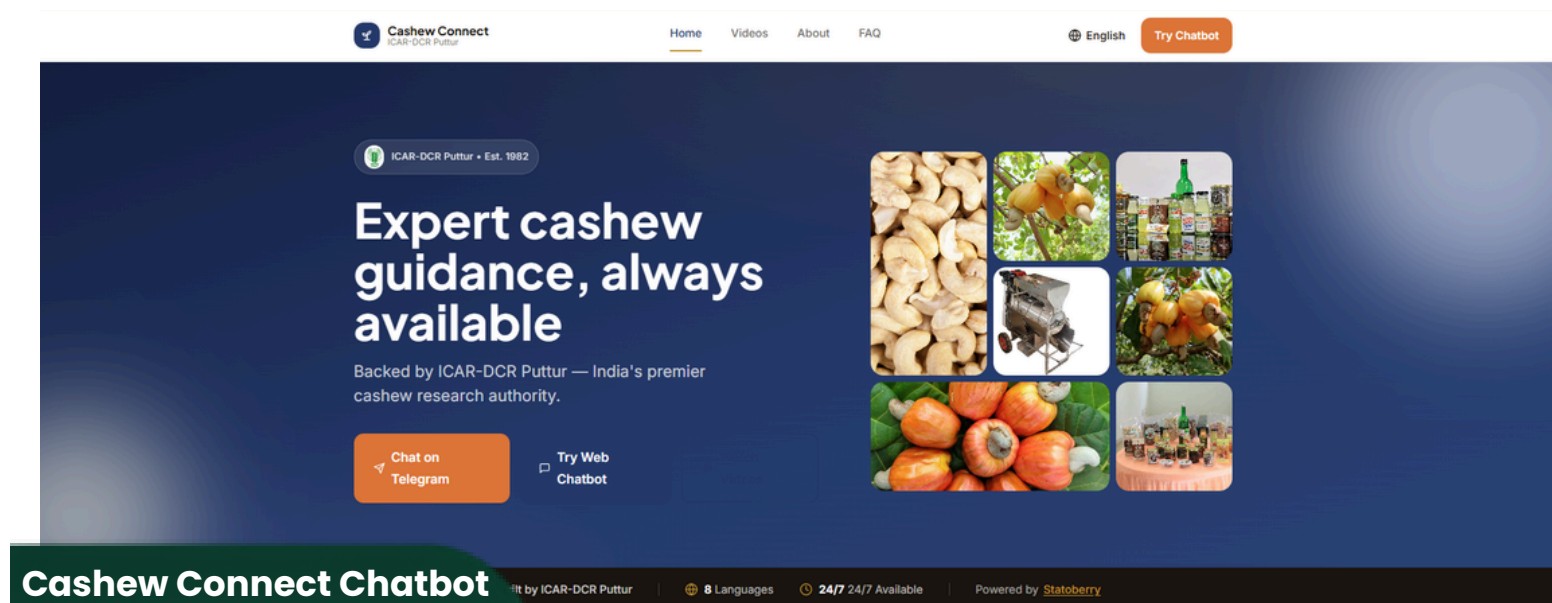
VIKSIT KRISHI SANKALP ABHIYAN

29 MAY – 12 JUNE 2025

Technology dissemination • Farmer interaction •
Understanding researchable issues



FOR A
VIBRANT
CASHEW
TOMORROW



AI integrated multi lingual telegram chatbot supported on website also.



Farmer Trainings



Cashew Day



Industry Interface Meeting 2026



TECHNOLOGIES
TO FARMERS



SKILLS
FOR LIVELIHOODS



PARTNERSHIPS
FOR GROWTH



SUSTAINABLE
CASHEW SECTOR



ICAR – DIRECTORATE OF CASHEW RESEARCH

Puttur, Karnataka

Science for Sustainable Cashew Development

Technology Portfolio

From laboratory innovation to licensable solutions



INNOVATE
RESEARCH



PROTECT INTELLECTUAL
PROPERTY



TRANSFER
CREATE IMPACT

*Research
Innovations for
a Prosperous
Cashew Sector*



6

Technologies
Certified by ICAR



14

Technologies
Commercialised



4

Patents
filed



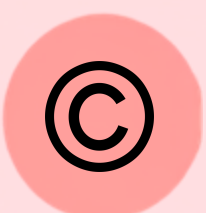
1

Patents
granted



7

Copyrights
filed



7

Copyrights
granted



2

Design
filed



3

Design
granted



3

Trademark
filed



15

Licensing Agreements
Signed

*Turning
Research into
Real-World Impact*





ICAR-Directorate of Cashew Research
Puttur, Karnataka

AGRICULTURAL KNOWLEDGE MANAGEMENT UNIT (AKMU)

Bridging the Last Mile, One Click at a Time

Digital solutions for knowledge, farmers
and a stronger cashew sector.



KNOWLEDGE
TO FARMERS



WIDER
OUTREACH



GREATER
IMPACT

2000+ Farmers Reached
through social media

OUR DIGITAL PLATFORMS



**VISIT
DCR WEBSITE**

Explore research,
technologies, news
and more

cashewresearch.in



**EXPLORE
CASHEW PROTECT**

Advisories for a
healthier cashew crop

CASHEW PROTECT



Cashew India

Information for growers
and stakeholders



Cashew Protect

Pest and disease
management advisories



CFTS

**Cashew Farmer
Tracking System**

Nursery management
and farmer services



**Germplasm
Database**

Conserving biodiversity
for the future



Pest Database

Information for
better protection

CONNECT WITH DCR



Facebook



Instagram



X (Twitter)



YouTube

*Stay
Connected
Stay Informed*



Looking Ahead

"From smarter genetics to smarter orchards, from zero-waste processing to digital farm advisory, ICAR-DCR is shaping a resilient, sustainable and globally competitive future for Indian cashew."

*Resilient Cashew
Stronger India*



1 Advanced Genetics & Biotechnology

Harness genomics, speed breeding and precision biotechnology to develop high-yielding, quality-rich and resilient cashew varieties.



2 Digital & Precision Cashew Farming

AI-enabled crop monitoring through drones, and digital decision-support systems for precision nutrients, water, pest and disease management.



3 Climate-Smart & Regenerative Systems

Climate-smart and regenerative approaches that focus on resource use efficiency, soil health, carbon sequestration and low-emission cashew production.



4 Circular Cashew Bioeconomy

Strengthen the circular cashew bioeconomy by converting cashew apple, shell and other by-products into high-value foods, nutraceuticals, biomaterials and bio-based products, while promoting smart harvesting, processing and reduced post-harvest losses.



*Sustainable
Cashew for a
Brighter Tomorrow*



Prosperous Farmers



Healthy Ecosystems



Value-Added Products



Global Competitiveness





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<https://cashewresearch.in>



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