**Nông nghiệp thông minh**

(Cập nhật đến ngày 10/3/2023)

Nền nông nghiệp ứng dụng công nghệ cao (tự động hóa, cơ giới hóa, …), công nghệ sản xuất, bảo đảm sản phẩm an toàn (GAP, GlobalGAP, hữu cơ…), công nghệ quản lý, nhận diện sản phẩm gắn với hệ thống AI (trí tuệ nhân tạo) chính là nông nghiệp thông minh.

Để hiểu rõ hơn Cục Thông tin KH&CN quốc gia xin giới thiệu một số bài nghiên cứu đã được xuất bản chính thức và các bài viết được chấp nhận đăng trên những cơ sở dữ liệu học thuật chính thống.



**1. Sciencedirect**

1. Evidence supports the potential for climate-smart agriculture in Tanzania  
Global Food Security 13 December 2022 Volume 36 (Cover date: March 2023) Article 100666  
Kristal Jones, Andreea Nowak, Anthony A. Kimaro  
<https://www.sciencedirect.com/science/article/pii/S2211912422000566/pdfft?md5=8dcc039881658cbeb03905fc37951426&pid=1-s2.0-S2211912422000566-main.pdf>

2. Self-powered smart agriculture sensing using triboelectric nanogenerators based on living plant leaves  
Nano Energy 16 December 2022 Volume 107 (Cover date: March 2023) Article 108097  
Yu Luo, Xia Cao, Zhong Lin Wang  
<https://www.sciencedirect.com/science/article/pii/S2211285522011752/pdfft?md5=892807b8bfed570bbddab8027a6ca1be&pid=1-s2.0-S2211285522011752-main.pdf>

3. Understanding technology acceptance in smart agriculture: A systematic review of empirical research in crop production  
Technological Forecasting and Social Change 31 January 2023 Volume 189 (Cover date: April 2023) Article 122374  
Rosemary J. Thomas, Gregory O'Hare, David Coyle  
<https://www.sciencedirect.com/science/article/pii/S0040162523000598/pdfft?md5=5e6f8382b51687351ecf6e01c6dd566c&pid=1-s2.0-S0040162523000598-main.pdf>

4. Automated climate prediction using pelican optimization based hybrid deep belief network for Smart Agriculture  
Measurement: Sensors Available online 28 February 2023 In press, journal pre-proof Article 100714  
A. Punitha, V. Geetha  
<https://www.sciencedirect.com/science/article/pii/S2665917423000508/pdfft?md5=822dab59bf42256080298decba14faed&pid=1-s2.0-S2665917423000508-main.pdf>

5. Multiple adoption of climate-smart agriculture innovation for agricultural sustainability: Empirical evidence from the Upper Blue Nile Highlands of Ethiopia  
Climate Risk Management 10 January 2023 Volume 39 (Cover date: 2023) Article 100477  
Abyiot Teklu, Belay Simane, Mintewab Bezabih  
<https://www.sciencedirect.com/science/article/pii/S2212096323000037/pdfft?md5=62f7e668dd07d90674d3ae066ff68b10&pid=1-s2.0-S2212096323000037-main.pdf>

6. SEPARATE: A tightly coupled, seamless IoT infrastructure for deploying AI algorithms in smart agriculture environments  
Internet of Things 24 February 2023 Volume 22 (Cover date: July 2023) Article 100734  
Juan Morales-García, Andrés Bueno-Crespo, José M. Cecilia  
<https://www.sciencedirect.com/science/article/pii/S2542660523000574/pdfft?md5=d7c749981b3f4c0478f8110264cd2dc9&pid=1-s2.0-S2542660523000574-main.pdf>

7. Towards climate action at farm-level: Distinguishing complements and substitutes among climate-smart agricultural practices (CSAPs) in flood prone areas  
Climate Risk Management24 February 2023Volume 40 (Cover date: 2023)Article 100491  
Asma AkterGershom Endelani MwalupasoXianhui Geng  
<https://www.sciencedirect.com/science/article/pii/S2212096323000177/pdfft?md5=322178aa31a0bbde3c4eaf3cce27bbcd&pid=1-s2.0-S2212096323000177-main.pdf>

8. A global synthesis of biochar's sustainability in climate-smart agriculture - Evidence from field and laboratory experiments  
Renewable and Sustainable Energy Reviews17 November 2022Volume 172 (Cover date: February 2023)Article 113042  
Yawen HuangBo TaoWei Ren  
<https://www.sciencedirect.com/science/article/pii/S1364032122009236/pdfft?md5=f175e5e93906873288c71eab49df49d2&pid=1-s2.0-S1364032122009236-main.pdf>

9. Blockchain and artificial intelligence-empowered smart agriculture framework for maximizing human life expectancy  
Computers and Electrical Engineering 30 November 2022 Volume 105 (Cover date: January 2023) Article 108486  
Nilesh Kumar Jadav, Tejal Rathod, Ahmed Alkhayyat  
<https://www.sciencedirect.com/science/article/pii/S0045790622007017/pdfft?md5=981509a4a5fbcbee11d37d4abfa2b19d&pid=1-s2.0-S0045790622007017-main.pdf>

10. Light-driven, ultra-sensitive and multifunctional ammonia wireless sensing system by plasmonic-functionalized Nb2CTx MXenes towards smart agriculture  
Nano Energy 21 January 2023 Volume 108 (Cover date: April 2023) Article 108216  
Tingting Zhou, Peng Zhang, Tong Zhang  
<https://www.sciencedirect.com/science/article/pii/S2211285523000526/pdfft?md5=5079d53dc242ff3b24f626bc29cd3289&pid=1-s2.0-S2211285523000526-main.pdf>

11. Small-scale irrigation (SSI) farming as a climate-smart agriculture (CSA) practice and its influence on livelihood improvement in Offa District, Southern Ethiopia  
Journal of Agriculture and Food Research 24 February 2023 Volume 12 (Cover date: June 2023) Article 100534  
Elias Bojago, Yitbarek Abrham  
<https://www.sciencedirect.com/science/article/pii/S2666154323000418/pdfft?md5=8c285e664060be357baa24ab9ccd705a&pid=1-s2.0-S2666154323000418-main.pdf>

12. Understanding gender differences on the choices of a portfolio of climate-smart agricultural practices in sub-saharan Africa  
World Development Perspectives 28 January 2023 Volume 29 (Cover date: March 2023) Article 100486  
Hailemariam Teklewold  
<https://www.sciencedirect.com/science/article/pii/S2452292923000024/pdfft?md5=dd043c5c91cf68331b8a74cdc23a9ce7&pid=1-s2.0-S2452292923000024-main.pdf>

13. A systematic review of IoT technologies and their constituents for smart and sustainable agriculture applications  
Scientific African 4 February 2023 Volume 19 (Cover date: March 2023) Article e01577  
Vivek Ramakant Pathmudi, Narendra Khatri, Ajay Kumar Vyas  
<https://www.sciencedirect.com/science/article/pii/S2468227623000364/pdfft?md5=eddb5fd8080df9fae2414dcfd5dcf04c&pid=1-s2.0-S2468227623000364-main.pdf>

14. A blockchain-enabled security framework for smart agriculture  
Computers and Electrical Engineering 25 January 2023 Volume 106 (Cover date: March 2023) Article 108594  
Kakali Chatterjee, Ashish Singh, Neha  
<https://www.sciencedirect.com/science/article/pii/S0045790623000198/pdfft?md5=b3fb97bfb0c1fe6f45cf071d5f10e241&pid=1-s2.0-S0045790623000198-main.pdf>

15. Smart agriculture: Development of a skid-steer autonomous robot with advanced model predictive controllers  
Robotics and Autonomous Systems 13 January 2023 Volume 162 (Cover date: April 2023) Article 104364  
Cesar Wen Zhu, Elyse Hill, John A. Cline  
<https://www.sciencedirect.com/science/article/pii/S0921889023000039/pdfft?md5=f0f732afd62c5d8b3278881f16902f48&pid=1-s2.0-S0921889023000039-main.pdf>

16. Smart precision agriculture but resource constrained farmers: Is service provision a potential solution? Farmer's willingness to pay for laser-land leveling services in Nepal  
Smart Agricultural Technology 18 June 2022 Volume 3 (Cover date: February 2023) Article 100084  
Gokul P. Paudel, Aditya Raj Khanal, Andrew J. McDonald  
<https://www.sciencedirect.com/science/article/pii/S2772375522000491/pdfft?md5=01b399c1bf3e6931c8c12f7799d8b9b9&pid=1-s2.0-S2772375522000491-main.pdf>

17. Control of pests and diseases in plants using IOT Technology  
Measurement: Sensors 23 February 2023 Volume 26 (Cover date: April 2023) Article 100713  
M. Gomathy Nayagam, B. Vijayalakshmi, P. Partheeban  
<https://www.sciencedirect.com/science/article/pii/S2665917423000491/pdfft?md5=e582d8140371f93bc6b7cc854b4894ee&pid=1-s2.0-S2665917423000491-main.pdf>

18. An optimized CNN-based intrusion detection system for reducing risks in smart farming  
Internet of Things 4 February 2023 Volume 22 (Cover date: July 2023) Article 100709  
Amir El-Ghamry, Ashraf Darwish, Aboul Ella Hassanien  
<https://www.sciencedirect.com/science/article/pii/S254266052300032X/pdfft?md5=c3ad7e7c40c061932b4dd3d741d6dec4&pid=1-s2.0-S254266052300032X-main.pdf>

19. Vision-based navigation and guidance for agricultural autonomous vehicles and robots: A review  
Computers and Electronics in Agriculture 28 December 2022 Volume 205 (Cover date: February 2023) Article 107584  
Yuhao Bai, Baohua Zhang, Zhihua Diao  
<https://www.sciencedirect.com/science/article/pii/S0168169922008924/pdfft?md5=917ef7f4748cd0ab25986007a8d41e03&pid=1-s2.0-S0168169922008924-main.pdf>

20. An empirical analysis on adoption of precision agricultural techniques among farmers of Punjab for efficient land administration  
Land Use Policy 9 January 2023 Volume 126 (Cover date: March 2023) Article 106533  
Abhishek Khanna, Sanmeet Kaur  
<https://www.sciencedirect.com/science/article/pii/S0264837722005609/pdfft?md5=99d1fd7f5db8cbd72918b63d18cb39d8&pid=1-s2.0-S0264837722005609-main.pdf>

21. An econometric analysis of Greenhouse gas emissions from different agricultural factors in Bangladesh  
Energy Nexus 16 February 2023 Volume 9 (Cover date: March 2023) Article 100179  
Asif Raihan, Dewan Ahmed Muhtasim, Abir Mahmood  
<https://www.sciencedirect.com/science/article/pii/S2772427123000098/pdfft?md5=9f4356626ac8a3692843f774afc24e42&pid=1-s2.0-S2772427123000098-main.pdf>  
  
22. Toward sustainable and green development in Chile: Dynamic influences of carbon emission reduction variables  
Innovation and Green Development 18 February 2023 Volume 2, Issue 2 (Cover date: June 2023) Article 100038  
Asif Raihan  
<https://www.sciencedirect.com/science/article/pii/S2949753123000061/pdfft?md5=639503c73384e592ca789fe09002b3a9&pid=1-s2.0-S2949753123000061-main.pdf>

23. Heritage genetics for adaptation to marginal soils in barley  
Trends in Plant Science Available online 27 February 2023 In press, corrected proof  
Sidsel Birkelund Schmidt, Lawrie K. Brown, Joanne Russell  
<https://www.sciencedirect.com/science/article/pii/S1360138523000274/pdfft?md5=d40af179caaa8d0e522f5723172d4e72&pid=1-s2.0-S1360138523000274-main.pdf>

24. Climate-induced migration among maize farmers in Ghana: A reality or an illusion?  
Environmental Development 27 January 2023 Volume 45 (Cover date: March 2023) Article 100808  
Shaibu Baanni Azumah, Abubakari Ahmed  
<https://www.sciencedirect.com/science/article/pii/S2211464523000088/pdfft?md5=420a99ffd44c76e33bb2b5f8d2152e76&pid=1-s2.0-S2211464523000088-main.pdf>

25. Human–robot collaboration systems in agricultural tasks: A review and roadmap  
Computers and Electronics in Agriculture 6 December 2022 Volume 204 (Cover date: January 2023) Article 107541  
George Adamides, Yael Edan  
<https://www.sciencedirect.com/science/article/pii/S0168169922008493/pdfft?md5=9ce4a69c10560ec09370283c07f20591&pid=1-s2.0-S0168169922008493-main.pdf>

26. Data-driven model predictive control for precision irrigation management  
Smart Agricultural Technology 29 May 2022 Volume 3 (Cover date: February 2023) Article 100074  
Erion Bwambale, Felix K. Abagale, Geophrey K. Anornu  
<https://www.sciencedirect.com/science/article/pii/S2772375522000399/pdfft?md5=7a7956722b8c41014993c2a4a27f4e0a&pid=1-s2.0-S2772375522000399-main.pdf>

27. Land use and land cover change implications on agriculture and natural resource management of Koah Nheaek, Mondulkiri province, Cambodia  
Remote Sensing Applications: Society and Environment 16 December 2022 Volume 29 (Cover date: January 2023) Article 100895  
Vanna Teck, Ate Poortinga, Ratha Chea  
<https://www.sciencedirect.com/science/article/pii/S2352938522002038/pdfft?md5=7730e9f3fab8099c9bcf134b9f79dcfb&pid=1-s2.0-S2352938522002038-main.pdf>

28. Deep learning based multi-labelled soil classification and empirical estimation toward sustainable agriculture  
Engineering Applications of Artificial Intelligence 19 December 2022 Volume 119 (Cover date: March 2023) Article 105690  
Padmapriya J.Sasilatha T.  
<https://www.sciencedirect.com/science/article/pii/S0952197622006807/pdfft?md5=7e39a3cb38839d19e37ca0652f623712&pid=1-s2.0-S0952197622006807-main.pdf>  
  
29. Mn4+-activated red pc-LED for precisely matching the spectral absorption and circadian rhythm of photoreceptor toward promoting crop growth  
Journal of Alloys and Compounds 16 December 2022 Volume 938 (Cover date: 25 March 2023) Article 168493  
Kaiyuan Deng, Yahong Jin, Yihua Hu  
<https://www.sciencedirect.com/science/article/pii/S0925838822048848/pdfft?md5=8148119702b213c3d9b1d39b34ca6bdc&pid=1-s2.0-S0925838822048848-main.pdf>

30. New frontiers of invasive plants for biosynthesis of nanoparticles towards biomedical applications: A review  
Science of The Total Environment 7 October 2022 Volume 857, Part 2 (Cover date: 20 January 2023) Article 159278  
Duyen Thi Cam Nguyen, Thuan Van Tran, Taeyoon Lee  
<https://www.sciencedirect.com/science/article/pii/S004896972206377X/pdfft?md5=475ca3f93c33d0c4ee3466b8cdbab351&pid=1-s2.0-S004896972206377X-main.pdf>

31. Intelligent micro flight sensing system for detecting the internal and external quality of apples on the tree  
Computers and Electronics in Agriculture 23 December 2022 Volume 204 (Cover date: January 2023) Article 107571  
Xinlong ZhaoYankun Peng, Yahui Chen  
<https://www.sciencedirect.com/science/article/pii/S0168169922008791/pdfft?md5=2a805857b505b9f3058a37d5267681f9&pid=1-s2.0-S0168169922008791-main.pdf>

32. The dynamic nexus between economic growth, renewable energy use, urbanization, industrialization, tourism, agricultural productivity, forest area, and carbon dioxide emissions in the Philippines  
Energy Nexus 17 February 2023 Volume 9 (Cover date: March 2023) Article 100180  
Asif Raihan  
<https://www.sciencedirect.com/science/article/pii/S2772427123000104/pdfft?md5=5c10de24cf9c4f0e59fddd76edd6aff3&pid=1-s2.0-S2772427123000104-main.pdf>

33. Exploring the transferability of wheat nitrogen status estimation with multisource data and Evolutionary Algorithm-Deep Learning (EA-DL) framework  
European Journal of Agronomy 19 December 2022 Volume 143 (Cover date: February 2023) Article 126727  
Guojie Ruan, Urs Schmidhalter, Qiang Cao  
<https://www.sciencedirect.com/science/article/pii/S1161030122002751/pdfft?md5=5414c56a4624d1d4c4f5a03acf3fdbef&pid=1-s2.0-S1161030122002751-main.pdf>

34. Control temperature of greenhouse for higher yield and higher quality grapes production by combining STB in situ service with on time sensor monitoring  
Heliyon 8 February 2023 Volume 9, Issue 2 (Cover date: February 2023) Article e13521  
Zengyuan Li, Hao Huang, Weifeng Zhang  
<https://www.sciencedirect.com/science/article/pii/S2405844023007284/pdfft?md5=c5f47c81da2909b2372581b2e8d0a637&pid=1-s2.0-S2405844023007284-main.pdf>

35. Nano-biofertilizers as bio-emerging strategies for sustainable agriculture development: Potentiality and their limitations  
Science of The Total Environment 24 November 2022 Volume 860 (Cover date: 20 February 2023) Article 160476  
Barkha Sharma, Shalini Tiwari, Massimiliano Cardinale  
<https://www.sciencedirect.com/science/article/pii/S0048969722075787/pdfft?md5=898c252a883a84af9ce3ff8bd94ce3cd&pid=1-s2.0-S0048969722075787-main.pdf>

36. Smart farming and artificial intelligence in East Africa: Addressing indigeneity, plants, and gender  
Smart Agricultural Technology 30 October 2022 Volume 3 (Cover date: February 2023) Article 100132  
Laura Foster, Katie Szilagyi, Jeremy de Beer  
<https://www.sciencedirect.com/science/article/pii/S2772375522000971/pdfft?md5=e4fd4877f3cdbe29ffe8d38b7eb03130&pid=1-s2.0-S2772375522000971-main.pdf>

**2. Springer**

1. Impact of climate-smart agriculture adoption on food security and multidimensional poverty of rural farm households in the Central Rift Valley of Ethiopia  
Hussien Ali, Mesfin Menza, Fitsum Hagos, Amare Haileslassie in Agriculture & Food Security (2023)  
[https://link.springer.com/content/pdf/10.1186%2Fs40066-022-00401-5.pdf?pdf=core](https://link.springer.com/content/pdf/10.1186/s40066-022-00401-5.pdf?pdf=core)

2. The Progress of the Development of a Climate-smart Agriculture in Europe: Is there Cohesion in the European Union?  
Mangirdas Morkunas, Artiom Volkov in Environmental Management (2023)  
[https://link.springer.com/content/pdf/10.1007%2Fs00267-022-01782-w.pdf?pdf=core](https://link.springer.com/content/pdf/10.1007/s00267-022-01782-w.pdf?pdf=core)

3. Impact of the endophytic and rhizospheric bacteria on crop development: prospects for advancing climate-smart agriculture  
Amzad Hossain, Zahid Hassan… in Journal of Crop Science and Biotechnology (2023)  
[https://link.springer.com/content/pdf/10.1007%2Fs12892-023-00195-3.pdf?pdf=core](https://link.springer.com/content/pdf/10.1007/s12892-023-00195-3.pdf?pdf=core)

4. Deep Learning Based IoT Module for Smart Farming in Different Environmental Conditions  
R. Manikandan, G. Ranganathan, V. Bindhu in Wireless Personal Communications (2023)  
[https://link.springer.com/content/pdf/10.1007%2Fs11277-022-10016-5.pdf?pdf=core](https://link.springer.com/content/pdf/10.1007/s11277-022-10016-5.pdf?pdf=core)

5. Measures of livelihoods and their effect on vulnerability of farmers to climate change: evidence from coastal and non-coastal regions in India  
Usha Das, M. A. Ansari, Souvik Ghosh in Environment, Development and Sustainability (2023)  
[https://link.springer.com/content/pdf/10.1007%2Fs10668-023-02911-z.pdf?pdf=core](https://link.springer.com/content/pdf/10.1007/s10668-023-02911-z.pdf?pdf=core)

6. Evaluating adoption of climate smart agricultural practices among farmers in the Fujian Province, China  
Rao Sabir Sattar, Muhammad Sajid Mehmood… in Environmental Science and Pollution Research (2023)  
[https://link.springer.com/content/pdf/10.1007%2Fs11356-023-25480-0.pdf?pdf=core](https://link.springer.com/content/pdf/10.1007/s11356-023-25480-0.pdf?pdf=core)

7. Smallholders’ resilience-building adaptation and its influencing factors in rainfed agricultural areas in China: based on random forest model  
Xueping Li, Xingmin Shi in Environmental Science and Pollution Research (2023)  
[https://link.springer.com/content/pdf/10.1007%2Fs11356-023-25807-x.pdf?pdf=core](https://link.springer.com/content/pdf/10.1007/s11356-023-25807-x.pdf?pdf=core)

8. VGG-ICNN: A Lightweight CNN model for crop disease identification  
Poornima Singh Thakur, Tanuja Sheorey, Aparajita Ojha in Multimedia Tools and Applications (2023)  
[https://link.springer.com/content/pdf/10.1007%2Fs11042-022-13144-z.pdf?pdf=core](https://link.springer.com/content/pdf/10.1007/s11042-022-13144-z.pdf?pdf=core)

9. An IoT-Enabled Multi-Sensor System with Location Detection for Agricultural Applications  
Girija Nandan Kar, Pawan Verma, Somnath Mahato, Atanu Santra, Surajit Kundu… in MAPAN (2023)  
[https://link.springer.com/content/pdf/10.1007%2Fs12647-022-00617-7.pdf?pdf=core](https://link.springer.com/content/pdf/10.1007/s12647-022-00617-7.pdf?pdf=core)

10. An econometric evaluation of the effects of economic growth, energy use, and agricultural value added on carbon dioxide emissions in Vietnam  
Asif Raihan in Asia-Pacific Journal of Regional Science (2023)  
[https://link.springer.com/content/pdf/10.1007%2Fs41685-023-00278-7.pdf?pdf=core](https://link.springer.com/content/pdf/10.1007/s41685-023-00278-7.pdf?pdf=core)

11. Business As Usual Versus Climate-responsive, Optimised Crop Plans – A Predictive Model for Irrigated Agriculture in Australia in 2060  
Andrew Lewis, James Montgomery, Max Lewis, Marcus Randall… in Water Resources Management (2023)  
[https://link.springer.com/content/pdf/10.1007%2Fs11269-023-03472-6.pdf?pdf=core](https://link.springer.com/content/pdf/10.1007/s11269-023-03472-6.pdf?pdf=core)

12. Awareness and perception of climate change by smallholder farmers in two agroecological zones of Oyo state Southwest Nigeria  
Oreoluwa Akano, Sinah Modirwa, Kolapo Oluwasemire, Oladimeji Oladele in GeoJournal (2023)  
[https://link.springer.com/content/pdf/10.1007%2Fs10708-022-10590-y.pdf?pdf=core](https://link.springer.com/content/pdf/10.1007/s10708-022-10590-y.pdf?pdf=core)

13. Gender perspectives in vulnerability of Nigeria’s agriculture to climate change impacts: a systematic review  
Ifeoma Quinette Anugwa, Esdras Abréwa Rêmilokoun Obossou… in GeoJournal (2023)  
[https://link.springer.com/content/pdf/10.1007%2Fs10708-022-10638-z.pdf?pdf=core](https://link.springer.com/content/pdf/10.1007/s10708-022-10638-z.pdf?pdf=core)

14. An aggregated loss function based lightweight few shot model for plant leaf disease classification  
Shankey Garg, Pradeep Singh in Multimedia Tools and Applications (2023)  
[https://link.springer.com/content/pdf/10.1007%2Fs11042-023-14372-7.pdf?pdf=core](https://link.springer.com/content/pdf/10.1007/s11042-023-14372-7.pdf?pdf=core)

     Nguồn: Cục Thông tin khoa học và công nghệ quốc gia