



UNIVERSITY OF LIFE SCIENCES "KING MIHAI I" FROM TIMISOARA

"YOUNG PEOPLE AND MULTIDISCIPLINARY RESEARCH IN APPLIED LIFE SCIENCES"



"Young people and multidisciplinary research in applied life sciences"

21-22 November 2024

MODERN AGRICULTURE TENDENCIES IN RURAL AREAS

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Abstract: In the past few years, there has been a significant alteration in the agricultural methodologies observed in rural locales, necessitating a reassessment of long-standing practices. The convergence of technological advancements and novel farming techniques has surfaced as a countermeasure to the difficulties engendered by climate change, increasing population numbers, and economic tensions. Grasping these developments is essential, as they not only signify the transformation of farming methods but also exert influence over the socioeconomic structures within rural societies. As contemporary agricultural efforts progress, they are instrumental in reshaping the rural terrain, impacting both local economies and more extensive environmental consequences. Therefore, this essay aims to investigate current trends in rural agriculture, scrutinising their ramifications for sustainability and the resilience of communities. By probing into the subtleties of these practices, an extensive overview will be elucidated, underscoring the interrelation of agricultural innovation and the advancement of rural areas, ultimately cultivating a richer understanding of the intricate nature of the agricultural landscape in modern times.

• Introduction

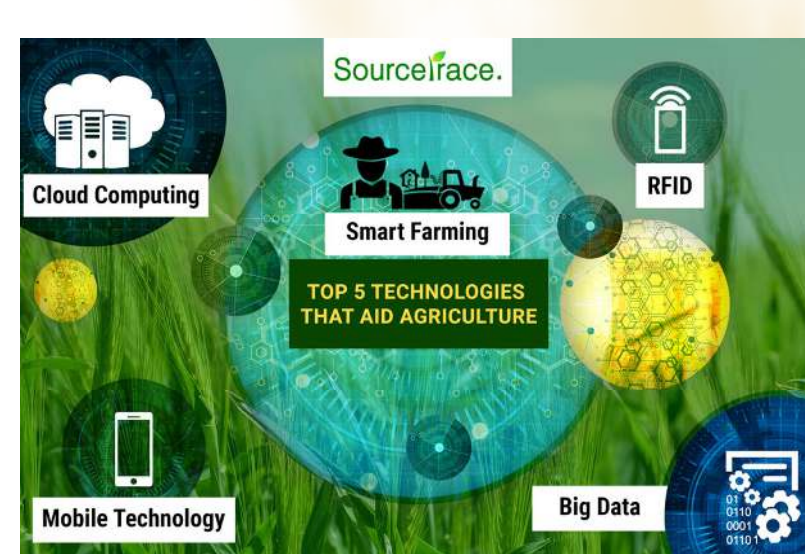
Rural economies, in a fundamental sense, are heavily reliant on agriculture, which acts not only as a foundational element for their sustainability but also impacts economic performance and social cohesion as well as cultural identity. The agricultural sector plays a pivotal role in providing employment opportunities, resulting in a notable decrease in unemployment rates within these areas, whilst simultaneously nurturing community engagement through various cooperative farming endeavours.

• Material and method

Presently observable tendencies within the realm of rural agriculture are progressively being influenced by the amalgamation of technological advancements alongside innovative methodologies that bolster both productivity and sustainability. The deregulation of the Information and Communication Technology (ICT) sector, particularly exemplified by substantial infrastructure investments in Kenya, serves to illuminate the manner in which digital instruments and mobile applications are transforming agricultural methodologies, thereby empowering farmers to execute informed decision-making in a swift and efficient manner (Ruslana Sodoma et al., 2022). Such technological progress is deemed essential for the transition towards more robust agricultural systems, especially in locales aiming for food autonomy. Within the context of Kazakhstan, the implementation of pioneering agricultural technologies has played a role in ameliorating food security, notwithstanding the ongoing predicament regarding inadequate adherence to fundamental nutritional standards (Ramesh Chand, 2022).

Technological Advancements in Agriculture

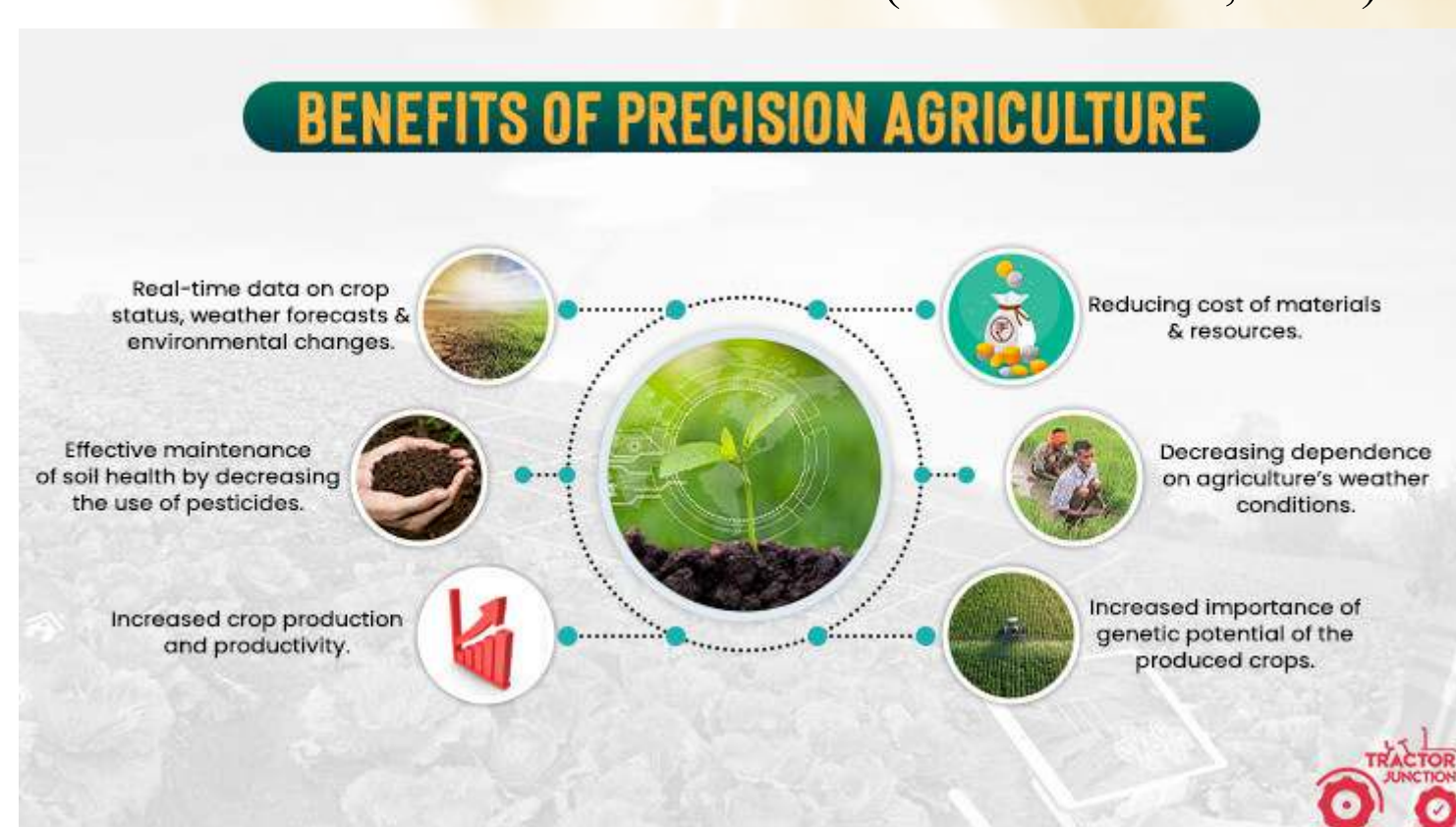
The progression of agricultural methodologies has been notably influenced by advancements in technology, which have led to transformations in both productivity and sustainability within countryside locales. The advent of precision agriculture techniques and digital implements now allows farmers to engage in data analytics for the optimisation of resource distribution, thereby enhancing yields whilst concurrently reducing environmental ramifications. Moreover, the amalgamation of mobile technologies enables instantaneous correspondence between farmers and agricultural extension services, thus improving the spread of knowledge and efficient practices (Mingxi Zhou, 2024).



Top 5 Technologies That Help Agriculture

Precision farming and its impact on productivity

The execution of precision farming methodologies has considerably transformed agricultural productivity, exhibiting a plethora of benefits which transcend mere increases in yield. Through the utilisation of progressive technologies such as sensors, drones, and GPS, agriculturalists are able to gather and scrutinise pivotal data related to soil health, moisture levels, and crop vitality. This data-centric methodology facilitates customised interventions—optimising irrigation and fertilisation plans to fulfil particular crop prerequisites whilst concurrently diminishing resource wastage (Yuekuan Zhou, 2024).



What is Precision Farming? Technologies & Applications

Adoption of smart farming technologies

The amalgamation of smart farming technologies stands as a crucial development within contemporary agricultural methodologies, markedly shaping productivity along with sustainability in rural locales. As substantiated by recent investigations, this technology not merely augments operational efficacy but also tackles vital obstacles such as food security.

• Conclusions

In the synthesis of findings pertaining to the tendencies of contemporary agriculture within rural locales, it becomes apparent that a bifurcated approach characterised by agrarisation and deagrarisation is significantly influencing the agricultural terrain, particularly in nations such as Ukraine and Russia. This intricate situation highlights the importance of the evolution of human capital as a pivotal force propelling sustainable agricultural methodologies. For example, the evident stratification of households within Ukraine exposes a troubling inclination among smaller landholders, who are progressively withdrawing from agrarian pursuits in preference for non-agricultural vocations, as evidenced in (Н.П. Воронина, 2020).

• Results and discussions

Sustainable Practices in Rural Agriculture

The amalgamation of technology within rural agricultural contexts has surfaced as a pivotal element propelling sustainable methodologies, which in turn fosters enhanced efficiencies in resource utilisation along with productivity augmentation. Contemporary developments in precision agriculture, which are fundamentally supported by Artificial Intelligence (AI), facilitate markedly improved decision-making processes alongside resource optimisation. For example, AI-infused technologies empower agrarians to surveil the health of crops in a contemporary manner, employing instruments such as unmanned aerial vehicles (drones) and satellite imagery.



Application of Smart Techniques, Internet of Things and Data Mining for Resource Use Efficient and Sustainable Crop Production

A. Organic farming and its benefits for rural communities

The shift towards organic farming within rural locales presents a complex variety of advantages that surpass simply enhancing agricultural yields. By promoting local cooperation and establishing sustainable job positions, organic farming serves as a driving force for social justice in these areas. The focus on community-centred education and the cultivation of entrepreneurial skills, as evidenced by the notable enhancements in entrepreneurial abilities noted among organic farmers following specific training programmes, underscores the significance of educational efforts in strengthening local competencies.

B. Water conservation techniques and their significance

In the contemporary milieu of agricultural methodologies, the application of proficient water conservation methods has become of paramount importance in order to maintain productivity levels whilst reducing environmental detriment. Such approaches not only enhance the efficiency of water usage but also bolster resilience in the face of climate variabilities, thus improving the overarching sustainability of agriculture.

The impact of global markets on local agricultural practices

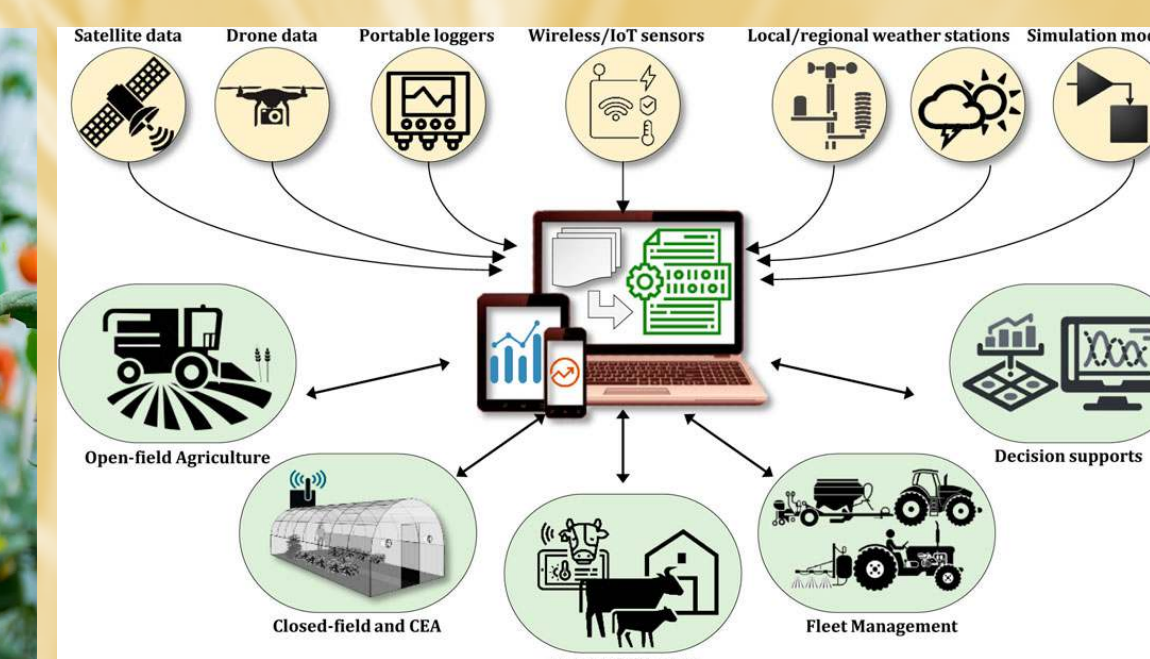
The interconnection existent amongst worldwide markets exerts a considerable influence over local agricultural methodologies, revealing a convoluted interaction of adjustment and metamorphosis. Taking Ukraine as a case in point, it is observed that households operating larger plots of land display a propensity to embrace novel agricultural technologies in an effort to maintain competitiveness within a globalised economic framework, as suggested by findings that outline an active progression in agricultural practices among those overseeing more than 1.01 hectares.

Financial support and subsidies for modern agricultural methods

In the endeavour to further the progress of contemporary agricultural methodologies, it is of paramount importance that financial support along with subsidies is recognised as a significant element in aiding the shift from conventional practices to advanced techniques. Such monetary incentives hold particular significance for farmers who are making the transition towards sustainable methods that seek to bolster both productivity and environmental guardianship. To illustrate, within the framework of flax and hemp cultivation in Ukraine, an inadequacy of adequate funding has resulted in a dependence on antiquated, energy-demanding technologies, culminating in a mere 20-30% efficiency in fibre production (ЛУБ'ЯНИХ Култур et al., 2020).



Transforming Fields: The Impact of AI Technology on Agriculture



Digitalization of agriculture for sustainable crop production

