



International Journal of Research in Agronomy

E-ISSN: 2618-0618
P-ISSN: 2618-060X
© Agronomy
NAAS Rating: 5.20
www.agronomyjournals.com
2025; SP-8(6): 125-128
Received: 25-04-2025
Accepted: 29-05-2025

Rakhi Gupta
Department of Sociology, CCS
Haryana Agricultural University,
Hisar, Haryana, India

Dr. Vinod Kumari
Department of Sociology, CCS
Haryana Agricultural University,
Hisar, Haryana, India

Status of rural women in the context of farm technologies advancement in Haryana

Rakhi Gupta and Vinod Kumari

DOI: <https://www.doi.org/10.33545/2618060X.2025.v8.i6Sb.3129>

Abstract

The goal of the current study was to determine how widely agricultural technologies are being adopted. 360 rural women from two districts in the state of Haryana—Kurukshetra and Mahendragarh—were the subjects of the research. A pre-planned interview schedule was used to survey them in accordance with the goals. The chi-square test revealed a strong correlation between the high adoption of agricultural technology and the following factors: education, family education, family type, family size, income, landholding, media exposure, and socioeconomic position. Adoption rates are favourably correlated with income and education levels, and they are positively correlated with greater landholdings and smaller families. Socioeconomic position and media exposure are important factors that shape awareness and resource accessibility, which in turn affects adoption decisions.

Keywords: Rural women, agricultural technologies, adoption

Introduction

Rural women historically had limited access to contemporary agricultural technology, frequently as a result of cultural and patriarchal norms that hindered their ability to acquire resources and participate in decision-making (Rehman, 2000) ^[6]. Nonetheless, women's participation in the agricultural and related fields has significantly increased in recent years (Mallik *et al.*, 2009) ^[3]. Women have historically played a minor role in decision-making, despite their substantial commitment to agricultural work, which reflects their lower social standing in rural households (Dudi *et al.*, 2017) ^[1]. Scholars contend that in order to achieve gender parity in rural development, cultural views toward acknowledging and appreciating women's responsibilities and contributions must change dramatically, affecting both men and women (Rani, 2017; Singh *et al.*, 2020) ^[5, 7].

Innovation in technology is essential to raising agricultural output. Effective technology in rural areas must be properly customized, which means it must be scientifically sophisticated yet adjusted to the sociocultural and environmental context of the area. Crucially, evaluating the practical efficacy of such technical advancements depends on their gendered effects. Research indicates that boosting rural women's use of technology can have a transformative effect, strengthening women's autonomy and well-being, expanding job options, and reducing the gender gap in agriculture (Quisumbing *et al.*, 2014; FAO, 2011) ^[4, 2].

Objective of the study

The goal of the current study was to investigate how women's roles and status are affected by the use of technology.

Methods

1. **Locale of the study:** The study will be carried out in Haryana state purposively as the state has witnessed fast technological advancement.
2. **Selection of the districts:** The study will be conducted in two districts selected purposively, Kurukshetra from high developed districts and Mahendragarh from low-developed districts using the criteria of the agricultural and socio-economic composite index of development. (Ohlan, 2013) ^[8].

Corresponding Author:
Rakhi Gupta
Department of Sociology, CCS
Haryana Agricultural University,
Hisar, Haryana, India

3. **Selection of the blocks:** From each selected district, two blocks will be selected randomly.
4. **Selection of the villages:** From each selected block, three villages will be selected at random. Thus, a total of twelve villages will be included in the present study.
5. **Selection of the respondents:** A sample of 30 women in

the age group of 20-45 years will be selected randomly from each village, thus making a total sample of 360 rural women.

Results and Discussion

Association of socio-economic variables with extent of adoption about farm technologies

Socio-economic variables	Extent of Adoption about farm technologies			
	High	Medium	Low	Total
Age				
20 to 28 yrs.	44(40.74)	45(41.67)	19(17.59)	108(30.00)
29 to 37yrs.	69(52.67)	41(31.30)	21(16.03)	131(36.39)
38 to 45yrs.	72(59.50)	29(23.97)	20(16.53)	121(33.61)
Total	185(51.39)	115(31.94)	60(16.67)	360(100.00)
$\chi^2_{cal} = 9.688^*$				
Caste Hierarchy				
General category	127(51.63)	77(31.30)	42(17.07)	246(68.33)
Backward class	20(29.85)	25(37.31)	22(32.84)	67(18.61)
Scheduled caste	12(25.53)	19(40.43)	16(34.04)	47(13.06)
$\chi^2_{cal} = 20.503^*$				
Education level of respondent				
Illiterate	33(44.60)	14(18.90)	27(36.50)	74(20.55)
Secondary	51(47.70)	35(32.70)	21(19.60)	107(29.72)
Sr. Secondary	38(50.00)	24(31.60)	14(18.40)	76(21.11)
Graduation and Above	62(60.20)	30(29.10)	11(10.70)	103(28.61)
$\chi^2_{cal} = 20.265^*$				
Family Education				
Illiterate	15(23.40)	23(35.90)	26(40.60)	64(17.77)
Secondary	54(54.00)	34(34.00)	12(12.00)	100(27.77)
Sr. Secondary	40(45.50)	26(29.50)	22(25.00)	88(24.44)
Graduation and Above	60(55.60)	32(29.60)	16(14.80)	108(30.00)
$\chi^2_{cal} = 29.267^*$				
Family Type				
Nuclear	42(18.18)	123(53.25)	66(28.57)	231(64.17)
Joint	39(30.23)	65(50.39)	25(19.38)	129(35.83)
$\chi^2_{cal} = 8.239$				
Family size				
Small (Up to 4 members)	35(35.35)	50(50.51)	14(14.14)	99(27.50)
Medium (5-8 members)	42(26.75)	69(43.95)	46(29.30)	157(43.61)
Large (More than 8 members)	34(32.69)	39(37.50)	31(29.81)	104(28.89)
$\chi^2_{cal} = 10.282$				
Annual Family Income (in Rs.)				
Up to 2 lacs	65(45.77)	43(30.28)	34(23.94)	142(39.44)
Between 2,00,000-4,00,000	50(51.55)	29(29.90)	18(18.56)	97(26.94)
Above 4,00,000	67(55.37)	47(38.84)	7(5.79)	121(33.61)
$\chi^2_{cal} = 16.590^*$				
Subsidiary Family Occupation				
Government Service	70(38.00)	42(36.80)	8(12.90)	120(33.30)
Agriculture Labour	88(47.80)	50(43.90)	36(58.10)	174(48.30)
Artisan	8(4.30)	8(7.00)	6(9.70)	22(6.10)
Small Enterprises	18(9.80)	14(12.30)	12(19.40)	44(12.20)
$\chi^2_{cal} = 16.962^*$				
Landholding				
Marginal (up to 2.5 acre)	25(45.45)	14(25.45)	16(29.09)	55(15.28)
Small (2.6 to 5.0 acre)	48(56.47)	26(30.59)	11(12.94)	85(23.61)
Semi-medium (5.1 to 10 acre)	39(59.09)	17(25.76)	10(15.15)	66(18.33)
Medium (10.1 to 25 acre)	25(54.35)	14(30.43)	7(15.22)	46(12.78)
Large (more than 25 acre)	69(63.89)	33(30.56)	6(5.56)	108(30.00)
$\chi^2_{cal} = 17.701^*$				
Mass Media Exposure				
Low (5-8)	98(53.00)	50(43.50)	33(55.00)	181(50.30)
Medium (8-11)	57(30.80)	46(40.00)	21(35.00)	124(34.40)
High (12-15)	30(16.20)	19(16.50)	6(10.00)	55(15.30)
$\chi^2_{cal} = 4.653^*$				
Socio-Economic Status				
Low (7-11)	40(51.30)	26(33.30)	12(15.40)	78(21.66)
Medium (11-14)	88(59.90)	43(29.30)	16(10.90)	147(40.83)
High (15-18)	103(76.30)	10(7.40)	22(16.30)	135(37.50)
$\chi^2_{cal} = 28.370^*$				

Age is significantly correlated with the degree of farm technology use, according to the chi-square value ($\chi^2 = 9.688^*$). The age range of 38-45 has the highest adoption rate (59.5%), followed by 29-37 (52.67%) and 20-28 (40.74%). Because they have more expertise, decision-making power, and access to resources, older farmers may be more likely to adopt cutting-edge technologies. Younger farmers have a moderate level of adoption, suggesting that more focused training and assistance are required to increase their involvement with contemporary farming methods.

The use of agriculture technology and caste hierarchy are significantly correlated, according to the chi-square value ($\chi^2 = 20.503^*$). The adoption rate is significantly lower among Backward Classes (29.85%) and Scheduled Castes (25.53%), whereas the greatest adoption rate is among general category farmers (51.63%). Better access to resources, training, and support networks may be the reason for higher adoption in the General category. The necessity for inclusive policies and focused interventions to eliminate caste-based gaps in the use of agricultural technology, on the other hand, is highlighted by the structural obstacles marginalized groups must overcome.

The adoption of farm technology and education level are significantly correlated, according to the chi-square value ($\chi^2 = 20.265^*$). The greatest adoption rate (60.20%) and lowest low adoption (10.70%) are found among respondents with higher education (graduation and above), whereas the lowest high adoption (44.60%) and highest low adoption (36.50%) are found among those who are illiterate. This trend highlights the significance of education in fostering agricultural innovation and reducing the knowledge gap among farmers by indicating that education improves awareness, access, and confidence in employing farm technology.

The use of farm technology and family education are significantly correlated, according to the chi-square value ($\chi^2 = 29.267^*$). The highest high adoption rate (55.60%) and the lowest low adoption rate (14.80%) are seen among families with higher education levels (Graduation and above). Illiterate families, on the other hand, have the greatest low adoption rate (40.60%) and the lowest high adoption rate (23.40%). According to this tendency, a family atmosphere with higher levels of education has a favorable impact on awareness, decision-making, and confidence when it comes to implementing farm technology, which encourages innovation and agricultural growth.

Type of Family and Adoption Scope ($\chi^2 = 8.239$)

The use of farm technology and family type have a modest relationship, according to the chi-square value.

Joint families had a higher adoption rate (30.23%) than nuclear families (18.18%), indicating that adoption may be encouraged by shared duties and resources.

Nonetheless, a greater percentage of low adoption (28.57%) is reported by nuclear families, suggesting potential shortages in funding, personnel, or assistance with decision-making.

Adoption Extent and Family Size ($\chi^2 = 10.282$)

Technology adoption and family size are more significantly correlated.

The highest high adoption rate (35.35%) and lowest low adoption rate (14.14%) are shown by small households (up to 4 members), which suggests improved resource availability and decision-making effectiveness.

The low adoption rates (~29%) for medium and big families are similar, indicating that adoption may be hampered by resource pressure and coordination issues after a certain size.

A substantial correlation between **annual family income**

and **adoption of farm technologies** is indicated by the chi-square value ($\chi^2 = 16.590^*$). The **highest adoption rate (55.37%)** and **lowest low adoption (5.79%)** are found in households with incomes over ₹4 lakh, suggesting that adoption is significantly supported by financial ability. On the other hand, adoption rates are lower (23.94%) for families with incomes under ₹2 lakh. Economic position is therefore a major factor—better access to and application of farm technology are made possible by higher wealth.

A statistically significant correlation between **subsidiary family occupation** and the **extent of agricultural technology adoption** is indicated by the chi-square value ($\chi^2 = 16.962^*$). The highest rates of high adoption (38%) and lowest rates of low adoption (12.90%) are seen in households with **government service**, indicating that steady income encourages the use of technology. On the other hand, due to budget limitations, **agriculture labour families** exhibit the lowest adoption rate (58.10%). Although they are underrepresented, artisan and small business families exhibit moderate to low adoption rates. Therefore, adoption behavior is greatly influenced by work.

Landholding size and **farm technology adoption** are significantly correlated, according to the chi-square value ($\chi^2 = 17.701^*$). Better investment ability is shown by the highest high adoption rate (63.89%) and lowest low adoption rate (5.56%) reported by larger landholders (above 25 acres). On the other hand, because of resource constraints, marginal farmers have a larger percentage of low adopters (29.09%). In Kurukshetra, landholding has a favorable impact on availability, affordability, and willingness to embrace agriculture technology, as seen by the adoption rate rising steadily with land size.

A **significant relationship** between the **extent of agricultural technology adoption** and mass media exposure is shown by the chi-square value ($\chi^2 = 4.653^*$). The rates of high adoption (16.20%) and low adoption (10%) are higher in households with **high media exposure**, indicating that they make well-informed decisions. Conversely, the lowest adoption rate (55%) is seen in people with **low exposure**, suggesting a lack of awareness. This pattern emphasizes how important the media is for spreading agricultural breakthroughs and promoting adoption through increased awareness and outreach.

The use of farm technology and socioeconomic class have a **strong significant relationship**, according to the chi-square value ($\chi^2 = 28.370^*$). Because they have more access to resources and knowledge, respondents in the **high SES group** had the greatest adoption rate (76.30%) and the lowest medium adoption rate (7.40%). Conversely, **low SES households** exhibit greater medium and low adoption rates and a relatively lower high adoption rate (51.30%), indicating a restricted ability to invest in new technology. This emphasizes how important SES is in determining adoption behavior.

Conclusion

In summary, while socio-economic factors such as education, income, landholding, caste, family structure, and occupation play a crucial role in enabling rural women to adopt technology, their impact remains inconsistent. These elements have contributed to greater involvement in agricultural and household advancements, fostering empowerment and improving decision-making abilities. However, the full benefits of technological adoption can only be achieved by addressing the existing gaps in awareness and education. Many women still lack sufficient knowledge, training, and confidence to independently access and utilize modern technologies. To bridge this divide, in addition to economic and structural reforms, focused initiatives on skill

development, gender-sensitive extension services, and grassroots awareness programs are essential. Providing women with education and accessible information will not only enhance their participation in the development process but also promote a more inclusive and sustainable transformation in rural communities.

References

1. Dudi A, Meena ML, Singh D. Participation and decision-making pattern of farm women in agriculture. *Asian J Home Sci.* 2017;12(1):109-113.
2. Food and Agriculture Organization of the United Nations. *The State of Food and Agriculture 2010-2011: Women in Agriculture-Closing the Gender Gap for Development.* Rome: FAO; 2011. p. 1-160.
3. Mallik A, Molla MM, Rahman LR, Anwar ABMN, Saha CK. Impact of modern agricultural technology on the livelihoods of rural women. *J Agric Mach Bioresour Eng.* 2009;6(1):33-39.
4. Quisumbing A, Meinzen-Dick R, Behrman J, Biermayr-Jenzano P, Wilde V, Noordeloos M, *et al.* *Gender in Agriculture: Closing the Knowledge Gap.* Dordrecht: Springer; 2014. 416 p.
5. Rani A. The changing role and legal status of women in India. *Int J Adv Res Ideas Innov Technol.* 2017;3(1):920-924.
6. Rehman J. Accommodating religious identities in an Islamic state: international law, freedom of religion, and the rights of religious minorities. *Int J Minor Group Rights.* 2000;7(2):139-165.
7. Singh SK, Sharma B, Vishwakarma D, Yadav G, Srivastva S, Maharana B. Women's empowerment and use of contraception in India: macro and micro perspectives emerging from NFHS-4 (2015-16). *Sex Reprod Healthc.* 2020;19:15-23.
8. Singh K, Ohlan A, Pham VH, Varshney S, Jang J, Hur SH, Choi WM, Kumar M, Dhawan SK, Kong BS, Chung JS. Nanostructured graphene/Fe₃O₄ incorporated polyaniline as a high-performance shield against electromagnetic pollution. *Nanoscale.* 2013;5(6):2411-2420.