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Training Needs of Agricultural Extension Personnel with Respect to World Trade Organization Issues

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Authors' contributions

This work was carried out in collaboration between all authors. Author ASM designed and performed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors KV and PS guided the author ASM during whole study period. All authors read and approved the final manuscript.

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ABSTRACT

The issues of World Trade Organization (WTO) are more confined to social sciences in general and economics in particular but in reality the changing situation demands involvement of every stakeholder for efficient deployment of resources. The fact is that the professionals who have direct link with farming community lack knowledge about WTO and its impact and implications on Indian agriculture. The present study was designed to study the extent of knowledge extension personnel have about WTO, relationship of various profile characteristics with knowledge level and their training needs with respect to WTO issues. The study was carried out in randomly selected three districts of Indian state of Maharashtra namely Nashik, Aurangabad and Yavatmal. A total of 60 extension personnel were selected using stratified random sampling from District level, Sub-division level, Taluka level and Mandal level. The study found that 80 per cent of extension personnel had low to very low level of knowledge on WTO issues. Only 63.33 per cent of the extension personnel knew that WTO is an institution administering trades between nations. The

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present investigation also revealed that none of the extension personnel had undergone any training on WTO, Plant Variety Protection and other related aspects. Extension personnel's knowledge had positive and significant relationship only with education and mass media exposure. The study also found that dimension 'Agreement on Agriculture issues' was the most important training need with gap of 88.10 per cent followed by "Structure and functions of WTO" and "Tariffs and quantitative restrictions". The study concluded that extension personnel must be given trainings on various basic aspects of WTO like basic structure and its agriculture related issues like Agreement on Agriculture.

Keywords: Extension personnel; WTO; training needs; knowledge.

1. INTRODUCTION

Globalization, strengthened by WTO, seems like a macroeconomic phenomenon but its effect on every individual is worth discussing. Sanitary, phytosanitary and other technical barriers to trade have been major reasons behind diminishing agricultural exports from India since inception of WTO reforms [1]. A study by Kumar and Singh [2] revealed that the export of Indian apple registererd a decline of 19.25 per cent in value terms during post WTO era (1995-2002), indicating challenges posed by WTO regime on Indian agriculture [2]. Similarly, Samal and Behera [3] identified the quantities and values of exports of basmati and non-basmati rice had increased considerably in the post WTO regime. It shows that WTO affects people earning from less than one-dollar-a-day to billionaires but with varying magnitudes leaving the less earned at the most vulnerable end. Baig et al. [4] have rightly mentioned that globalization, liberalization and World Trade Organization are among the most promising and prominent challenges for todays extension services. Ample number of researches in the field of impact of WTO on national economy and especially on poor farmers is on the library stack. First holistic information about the WTO issues, its likely impact and implications for the changing scenario has to be penetrated through the scientific community and extension machinery for taking up need based research and for disseminating the specific information at the grass roots level. Similarly, it is necessary to find out the present level of knowledge about WTO and related issues amongst various stakeholders of agriculture. Hence, the present study attempted to find the knowledge and training needs of extension personnel on WTO issues with special reference to agriculture.

2. METHODOLOGY

An exploratory field research design was used for determining knowledge level of extension personnel. The present study was carried out in the state of Maharashtra, India because it has variety of crops that are marketed in domestic as well as international markets. Stratified random sampling technique was used for selection of districts namely Nashik, Aurangabad and Yavatmal. Different strata, from which twenty (20) extension officers each were selected, were district level, sub-division level, *taluka* level and *mandal* level. Hence, the total sample size was sixty (60). Data were primarily collected through survey method using a structured interview schedule.

Knowledge was operationally defined as the content or matter extension personnel knew about the WTO and its agriculture related issues. For studying the level of knowledge of extension personnel a standardized knowledge tests was developed. The reliability of Knowledge test, the Cronbach Alpha coefficient, was found to be 0.828 and the validity was confirmed through judges opinion.

The knowledge index was calculated using the formula:

$$\text{Knowledge index} = \frac{\text{Score obtained by the respondent}}{\text{Possible maximum score}} \times 100$$

The training needs gap referred to the knowledge gap of extension personnel and the knowledge gap was the difference between the actual and desired knowledge about WTO and related issues. The knowledge mean score was the average score obtained for a statement by all the respondents. It was calculated using formula suggested by Singh et al. [5] and Raina et al. [6].

$$\text{KMS ith} = \frac{\text{Act ith}}{\text{Max ith}}$$

Where,

KMS i^{th} = Knowledge mean score for i^{th} statement

Act i^{th} = Total actual score obtained for i^{th} statement
Max i^{th} = Maximum possible score for i^{th} statement

Similarly, the training needs gap was calculated using formula suggested by Singh et al. [5].

$$\text{TNG ith} = (1 - \text{A}/\text{K MS ith}) X\ 100$$

Where,

TNG i^{th} = Training needs gap for i^{th} statement
KMS i^{th} = Knowledge mean score for i^{th} statement

3. RESULTS AND DISCUSSION

3.1 Knowledge of Extension Personnel with Respect to WTO and Its Agriculture Related Issues

Extension personnel's knowledge about WTO issues with special reference to agriculture were assessed through a knowledge test consisting of following dimensions: 'Introduction to WTO', 'Evolution of WTO', 'Its objectives', 'Structure and functions of WTO', 'Agreement on Agriculture' and 'Intellectual Property Rrights issues'. The maximum obtainable score on the knowledge test was 25. The maximum score obtained by the respondents was 18 and the minimum obtained score was one (1) indicating wide variation in their knowledge scores.

The study revealed that (Table 1) as much as 42 per cent of the extension personnels had very low level of knowledge about WTO and its agriculture related aspects. Strangely, a total of 80 per cent of the respondents had low to very low level of knowledge on WTO issues. Only 3.33 per cent of them had high level of knowledge and none of them was found to have very high level of knowledge. A similar study by European Commission [7] had revealed that 77 per cent of the general public had heard nothing about the trade discussions with the WTO. This shows a general ignorance of people about WTO talks.

Dimension wise analysis of extension personnel's knowledge (Table 2) shows that the mean knowledge score for the respondents was only 6.68 out of 25 with a standard deviation of 4.32.

3.2 Correlates of WTO Knowledge of Extension Personnel

The present investigation also tried to identify those traits or variables which can have effect on respondents' awareness and knowledge about WTO. The personal profile characteristics of the extension personnel are depicted in Table 3.

None of the extension personnel had reported to have undergone any training on aspects of WTO and agriculture. The results, examining the extension personnel's correlates to their knowledge about WTO and its agriculture related issues (Table 4), show that only education and mass media exposure had a positive and significant relationship with their knowledge. However, age and professional experience had no significant correlation with their knowledge. A similar study by Siddiqui et al., [8] reported that 40 percent of the teaching staff and 60 percent of the researchers came to know about WTO through electronic media, showing significance of electronic media for general awareness [8]. Moreover, a study by Thanh [9] concluded that there were no differences between repondents having rural and urban backgrounds on the awareness level about WTO and most of the respondents responded that they received information related to WTO from three main sources viz. newspapers, magazines, and journals.

3.3 Training Needs of Extension Personnel with Respect to WTO and Its Agriculture Related Issues

Extension personnel's knowledge about WTO issues with special reference to agriculture was assessed through a knowledge test and mean knowledge scores and training needs gap for each statement were calculated.

The study (Table 5) revealed that dimension "Agreement on Agriculture issues" was the most important training need with gap of 88.10 per cent for extension personnel. It was followed by "Structure and functions of WTO" with gap of 76.33 per cent, "Tariffs and quantitative restrictions" with gap of 69 per cent, "Intellectual property rights issues" with gap of 67.08 per cent and "Evolution and objectives of WTO" with gap of 55 per cent. Media plays an important role in defining the knowledge base of public, but a study by Moy et al. [10] which is based on analysis of articles on WTO during that time span showed that the most common foci of articles

were on WTO as an organization (27.6%), trade (16.9%), inter-national relations (16.5%), and the WTO meeting (13.2%) [10].

3.3.1 Training needs with respect to evolution and objectives of WTO

The results (Table 6) show that GATT as General Agreement on Tariffs and Trade and India joining WTO were the most visible training needs with gaps of 70.0 per cent and 60.0 per cent respectively. They were followed by membership of WTO (53.33%) and WTO as an institution administering trades between nations (36.67%).

3.3.2 Training needs with respect to structure and functions of WTO

The most observed training needs (Table 7) were General Council looking after trade disputes between nations, Ministerial Council being the topmost decision making body of WTO and process of decision making in WTO with training percentage of 96.67 per cent, 95.0 per cent and 88.33 per cent respectively. Further, other training needs were about WTO providing a forum for international trade negotiations (61.67%) and specific conditions to restrict trade (safety valve principle) (40.0%).

Table 1. Categorization of extension personnel with respect to knowledge about WTO issues with special reference to agriculture

Sr. no.	Categories (Knowledge index)	Frequency (N=60)	Percentage (%)
1	Very high (81 – 100%)	00	00.00
2	High (61- 80%)	02	03.33
3	Medium (41 – 60%)	10	16.67
4	Low (21 – 40%)	23	38.33
5	Very low (0 – 20%)	25	41.67

Table 2. Extension personnel's knowledge about WTO and its agriculture related issues

Dimensions	Mean	Std. deviation
Overall knowledge	**6.68**	**4.32**
1) Evolution and objectives of WTO	1.80	1.48
2) Structure and functions of WTO	1.18	1.00
3) Tariffs and quantitative restrictions	1.55	1.17
4) Agreement on Agriculture issues	0.83	1.22
5) Intellectual property rights issues	1.32	1.08

Table 3. Personal profile characteristics of extension personnel

Sr. no.	Attribute	Category	Frequency (N=60)	Percentage (%)
1	Age	Young age (up to 35 years)	38	63.33
		Middle age (36-50 years)	19	31.67
		Old age (more than 51 years)	3	5.00
2	Education	Diploma	13	21.67
		Graduation	15	25.00
		Post- graduation	29	48.33
		PhD	3	5.00
3	Professional experience	< 5 years	11	18.33
		5-10 years	29	48.33
		11-15 years	11	18.33
		16-20 years	5	8.33
		> 20 years	4	6.67
4	Mass-media exposure	Low (< Q1)	13	21.67
		Medium (Q1- Q2)	31	51.67
		High (Q2- Q3)	14	23.33
		Very high (> Q3)	2	3.33

Table 4. Correlates of extension personnel's knowledge

Sr. no.	Independent variables	Correlation coefficients value (r)
1.	Age	0.216
2.	Education	0.478**
3.	Experience	0.186
4.	Mass-Media exposure	0.411**

*** significant at 0.01 per cent level*

Table 5. Major training needs of extension personnel with respect to WTO and its agriculture related issues

Dimensions	Knowledge mean score	Training needs gap (%)	Rank
1) Evolution and objectives of WTO	0.45	55.00	V
2) Structure and functions of WTO	0.24	76.33	II
3) Tariffs and quantitative restrictions	0.31	69.00	III
4) Agreement on Agriculture issues	0.12	88.10	I
5) Intellectual property rights issues	0.33	67.08	IV

Table 6. Training needs of extension personnel with respect to evolution and objectives of WTO

Sr. no.	Statement	Knowledge mean score	Training needs gap (%)	Rank
1	WTO as an institution administering trades between nations	0.63	36.67	IV
2	Membership of WTO	0.47	53.33	III
3	GATT as General Agreement on Tariffs and Trade	0.30	70.00	I
4	India joining WTO	0.40	60.00	II

Table 7. Training needs of extension personnel with respect to structure and functions of WTO

Sr. no.	Statement	Knowledge mean score	Training needs gap (%)	Rank
1	WTO providing a forum for international trade negotiations	0.38	61.67	IV
2	Ministerial Council being the topmost decision making body of WTO	0.05	95.00	II
3	General Council looking after trade disputes between nations	0.03	96.67	I
4	Decision making process in WTO	0.12	88.33	III
5	Specific conditions to restrict trade (safety valve principle)	0.60	40.00	V

3.3.3 Training needs with respect to tariffs and quantitative restrictions of WTO

The data (Table 8) shows that the most discernible training needs were reasons behind prohibiting quantitative restrictions, WTO trying to evolve 'free market' system and Quantitative restrictions being restrictions on the quantity to be imported with 88.33 per cent, 83.33 per cent and 80.0 per cent training needs gap. Others were tariffs being duties imposed on both exports and imports (73.33%) and restricting imports in case of poor quality standards (20.0%).

3.3.4 Training needs with respect to issues of agreement on agriculture under WTO

The present investigation (Table 9) show that the most apparent training needs were commitments under Agreement on Agriculture, reduction commitments for Amber box supports and reducing support and protection to encourage fair

competition with training needs gaps 96.67 per cent, 96.67 per cent and 95.0 per cent.

Further, training needs were effects of massive subsidies to agriculture (93.33%), Agreement on Agriculture reforming trade in agricultural and making trade policies more market oriented (88.33%) and non-liability of minimum support price and support for agricultural research for reduction (78.33%).

3.3.5 Training needs with respect to issues of intellectual property rights under WTO

The study (Table 10) show that the most seeming training needs were a sui generis system for protection of plant varieties in India, Plant Breeders' Rights providing right to produce, market and export the branded seed material, and types of intellectual property rights with training needs gaps 96.67 per cent, 66.67

Table 8. Training needs of extension personnel with respect to tariffs and quantitative restrictions of WTO

Sr. no.	Statement	Knowledge mean score	Training needs gap (%)	Rank
1	WTO trying to evolve 'free market' system	0.17	83.33	I
2	Tariffs being duties imposed on both exports and imports	0.27	73.33	IV
3	Quantitative restrictions being restrictions on the quantity to be imported	0.20	80.00	III
4	Reasons behind prohibiting quantitative restrictions	0.12	88.33	I
5	Restricting imports in case of poor quality standards	0.80	20.00	V

Table 9. Training needs of extension personnel with respect to issues of agreement on agriculture under WTO

Sr. no.	Statement	Knowledge mean score	Training needs gap (%)	Rank
1	Agreement on Agriculture reforming trade in agricultural and making trade policies more market oriented	0.12	88.33	V
2	Commitments under Agreement on Agriculture	0.03	96.67	I
3	Effects of massive subsidies to agriculture	0.07	93.33	IV
4	Reducing support and protection to encourage fair competition	0.05	95.00	III
5	Agreement on Agriculture allowing supports under certain conditions	0.32	68.33	VII
6	Reduction commitments for Amber box	0.03	96.67	I
7	Non-liability of minimum support price and support for agricultural research for reduction	0.22	78.33	VI

Table 10. Training needs of extension personnel with respect to issues of intellectual property rights under WTO

Sr. no.	Statement	Knowledge mean score	Training needs gap (%)	Rank
1	Types of intellectual property rights	0.42	58.33	III
2	Books, films or computer softwares being protected under copyrights	0.53	46.67	IV
3	*A sui generis system* for protection of plant varieties in India	0.03	96.67	I
4	Plant Breeders' Rights providing right to produce, market and export the branded seed material	0.33	66.67	II

Per cent and 58.33 per cent respectively. Similarly, a book, films or computer softwares being protected under copyrights was the training need with 58.33 per cent training needs gap. A similar study by Vidyasagararya [11] found that only 51 per cent of students had good knowledge about Intellectual Property Rights (IPR) followed by assistant professors (43.6%), professors (42%) and associate professors (40.9%) [11]. A stronger IPR regime will be even more onerous and more difficult to catch up for the developing countries like India [12]. Therefore, extension personnel can not afford to ignore the significance of IPR issues. All the stakeholders, at all the levels, should be made aware and literate about IPRs in agriculture to empower them to respond to the opportunities, challenges and threats [13].

4. CONCLUSION

The study revealed that total of 80 per cent of extension personnel had low to very low level of knowledge on WTO issues. Only 3.33 per cent of them had high level of knowledge. None of them was found to have very high level of knowledge. It had also been found out that only 63.33 per cent of the extension personnel knew that WTO is an institution administering trades between nations.Thus, an overall picture of knowledge level of extension personnel with regard to WTO reveals ignorance regarding importance of WTO. The plausible reasons for low level of knowledge about WTO among extension personnel could be lack of trainings on such issues, poor motivational level to learn, unavailability of study materials, etc. The present investigation also revealed that none of the extension personnel had undergone any training on WTO, Plant Variety Protection and other related aspects. Extension personnel's knowledge had positive and significant relationship with education and mass media exposure. However, age and experience did not show any significant relationship with the level of knowledge about WTO. In terms of training needs gap for extension personnel, dimension "Agreement on Agriculture issues" was the most important training need with gap of 88.10 per cent. It was followed by "Structure and functions of WTO" and "Tariffs and quantitative restrictions". GATT as General Agreement on Tariffs and Trade, India joining WTO and membership of WTO, Ministerial council as the topmost decision making body of WTO, the process of decision making at WTO and General Council as a body for settling trade disputes, quantitative restrictions being restrictions on the quantity to be imported and reasons behind prohibiting quantitative restrictions, tariffs being duties imposed while importing or exporting and restricting imports in case of poor quality standards were the most discernible training needs of extension personnel. Furthermore, Agreement on Agriculture reforming trade in agriculture, Agreement on Agriculture striving for equal market access to domestic and imported products, non-liability of Minimum Support Prices and support for agricultural research for reduction commitments, effects of massive subsidies to agriculture and reducing support and protection to encourage fair competition were other training needs of extension personnel. Assessment of Knowledge about intellectual property right revealed that types of intellectual property rights, a *sui generissystem* for protection of plant varieties in India, Plant Breeders' Rights providing right to produce, market and export the branded seed material were other prominent training needs of extension personnel.

5. RECOMMENDATIONS

The present investigation concluded that extension personnel must be given trainings on very basic aspects of WTO and its agriculture related aspects which have larger implications for international trade in general and Indian agricultural trade in particular. Considering the extent of training needs gap they must be provided with self-instructional materials on the topic.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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