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Article

Evaluation of women participation in oasian agriculture (Case of Beni Souik & Branis, Biskra-Algeria)

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Abstract: Women play an important role in household tasks as well as in agriculture. However, their function and the tasks they carry out alongside those contributed by men, « farmer » Women role remain unclear or not described precisely and less studied. In the vision to illustrate rural woman participation in traditional oases agriculture and better understand the situation; inquiries were conducted in different regions including those of Beni-Souik and Branis oases in the region of Biskra, Algeria. Beside, their household responsibilities as home makers; woman in this regions plays an interesting function in different agricultural practices and breeding which is considered as an extension of domestic activities. Despite the fact that this role of peasant women is not recognized as economic contribution and they remain as unpaid labour; women in these oases perform important tasks in farming; they participate in hard strains that are known of masculine vocation such as soil preparation, weeding and harvesting. Through Data collected from 42 oases farm women using structured interview schedule; our results highlighted that farm women carry out individually different tasks in oases agriculture from soil preparation till harvesting even though the tasks are hard ones. The important role fulfilled by women in these oases of mountainous regions must be supported by technical assistance to preserve these farming systems and know-how lead by peasant women.

Keywords: Rural woman; participation; agriculture; oases

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1. Introduction

The main strength of the rural economy and development is women because women in developing countries heavily participate in agricultural production activities [1]. Women play significant and crucial role in agricultural and allied fields. Both economic and non-economic factors are responsible for women participation in agriculture. However, it is most unfortunate that role of women in agriculture has not recognized [2]. In spite of their large responsibilities, women have outright less accessibility to resources and services they need to increase their productivity and incomes, and to lighten their burden of household tasks [3]. Though, women are primary actors in the agriculture sector, in food security and household's nutrition as well as in natural resources management. They represent 43% of active agricultural population in the countries in development and up to 50% in Asia and sub-Saharan Africa [4]. Women play a significant and crucial role in agriculture. They undertake various activities in agriculture such as cleaning of fields, field preparation, sowing, intercultural practices, weeding, harvesting, picking, cleaning of grains, drying of grains etc. But it is unfortunate that they remain invisible workers [5].

In Algeria the feminine active population is estimated to be of 14 % of the total occupied population; which are spread on different sectors especially in administration (48,4%), industry (24%) and in commerce and services (12,5%) while in agriculture women

represent only 11 %. But the precision of woman work in the rural areas cannot be confirmed, it is often confused with the household routine and is even difficult to measure [6].

Previous studies in Algeria about women participation are rare. The most known dealt with the role of women in agro-pastoral system in the region of Djelfa [7; 8] as well as women participation in agriculture and breeding [9]. The central objective of this work was to get more information on real contribution of rural woman in agriculture in other regions. Our study is conducted in tow oases in a restraint area of Algeria to memorize data of the situation of rural women participation in agriculture especially in the oases of Beni Souik and Branis; Biskra during 2013, 2014 and 2015. We investigate these oases as being small and isolated areas where women still preserve some knowhow of oases agricultural system and as many of interviewed respondents have claimed the regression of woman participation in agriculture activities during our investigation. So the results of this research will be a valuable resource for future research in this domain.

2. Materials and Methods

Our analysis is based on an inquiry conducted from June 2013 until Mai 2015 in one region of Algeria; the Aures piedmont. The main agro-ecological area is characterized by an arid climate providing less than 150 mm rainfall [10]. The two sites Beni Souik and Branis have rain-fed and plural-crop agricultural systems leading to a very low current productivity or potential because of rain irregularity and rarity during autumn, winter, spring and extreme aridity in summer season. Thus, these farming systems are much fully dependent on irrigation. The two sites were selected based on their specific characteristics which arise from variation in water resource supply (valley= Oued and/or source) and rural family conditions. They group farm households with similar features and constraints. [11] reported that each individual farm has its own specific characteristics, which arise from variations in resource endowments and family circumstances.

Biskra; is the Ziban queen (Zab, in arabic, notify oases and make in plural Ziban.), it has around it a real court constituted by sixty oases spread both on its right and left on more than 150 Km. On the foot of the Atlas last foothills, mountain with capricious forms and hot coloring [12]. Where Beni Souik, small oases and a village in a very picturesque situation at 553 m, on a mountain escarpment [13]. While, the plateau of Branis is one of the Aurès foothills ends, at less than 300 m of altitude and at about 22 km of Biskra [14]. The palm dates of the oases are irrigated by the valley Oued Abdi. Among its palm dates flourish fig, orange, olive and apricot trees [15]. Although the soil in the two sites is fertile the crops grown are little thus almost the farmers irrigate with l'Oued Abdi valley who has been dehydrated by the frequent dried years and the dams constructed on the valley stream on higher regions.

The choice of these two sites has been done based on the fact that the total population is so limited. It does not exceed 4273 inhabitants during 2008 in Branis. Meanwhile Beni Souik has a population of 912 inhabitants [16]. The samples consist of 10% household's owners of oases farms (orchards) were chosen arbitrary following random sampling method. Thus among 22 families in Branis and 20 families in Beni Souik representing the deciles of families owning farms, one-woman farmer per household that accept to participate in this study was inquired on the base of two types of parameters: socio-economic and related to agricultural activities. Inquired women are essentially head of family or widow head of family who live in rural environment. They participate in agricultural activities including breeding in some cases. Thus in our inquiry we investigate 20 women from Beni Souik and 22 women from Branis about some Socio-economic parameters as well as some parameters related to participation in agricultural activities (Tab.1). The sample is small the fact that these oases have a small size rural population due to migration of new generation to cities.

Table 1. Parameters basis of the enquiry

Socio-economic parameters	Parameters related to agricultural activities
Age	Soil preparation
Education	Weeding
Marital situation	Fertilization
Family size	Hoeing
Land ownership	Harvesting
Occupation	Irrigation
Taking Farm Decisions	

Statistical analysis

Excel is used to analyze data. Experimental results were mean ± SD of three parallel measurements.

3. Results

The prospected oases are characterized by smallholder farms which are inferior to 1 ha of surface. Meanwhile, a low distance between home and farms (inferior to1 km) is registered too. Rural women perform numerous intensive activities in agricultural field. They are directly attached with autumn, winter, spring and summer season in oases agriculture system; which is considered as plural-crop including palm date, arboriculture and subjacent growing. Rain fed agriculture system is the dominant agricultural practices in this area. There is no irrigation facility for cultivation though the fields on the valley edges are irrigated by means of big dams and channels (seguias).

3.1. Socio-economic parameters

All the inquired women are originated from the region or married with a local inhabitant, thus the feminine working force is original from the oases and most of them exercise agricultural activities in their own or husband's exploitations since long time to improve familial income.

According to (Tab. 1), the inquired rural women age in the two sites is between 35 and over 60 years. 95% of them contribute in agriculture and animal breeding in addition to their household activities.

In the site of Beni souik; four groups of women (35-45, 45-55, 55-65 and over 65 years) participated in the agricultural activities. However, in Branis site three groups of rural women contributed in agriculture activities (35-45, 55-65 years and over 65 years). Thus, in the two sites most women working in agriculture were in 55-56 age group. With nearly half (45.55%) in Branis and 60% in Beni Souik.

In Beni souik, the educational status reveals that majority of women 75% were illiterate followed by alphabetisme level (20%) and primary education level (5%). Whereas, education level of Branis's rural women was higher than those from the site of Beni Souik site where, 27.72% of the respondents were illiterate followed by primary school level and alphabetisme level (18.18% for each level), secondary education level (13.64%) and university education level (9.09%).

In Beni Souik site, majority of rural women were married (90%) and (10%) were widow. Also, in Branis site, majority (77.27%) of the respondents were married, while (13.64%) were widow followed by (4.45%) single and divorced women for each of these two marital statuses. Moreover, results indicated that short family size consisted of 1 to 4 members; the average family size was of 5 or 6 members. Then, the big family size comprised more than 6 members. All respondents' family of Beni souik site had a big family size. Nevertheless, majority (77.27%) of the Branis respondents had too more than six members (a big family size).

Beni Souik and Branis' men own most of the land (95.45 and 81.82 %, respectively) and majority of the respondents in the two sites (95 %) are implicated in agricultural as well as in breeding activities.

The rate of men alone decision-makers in farm in Beni Souik is equal to the decision making rate of men with women (40%). However, aspects of agricultural decision-making in Branis were generally taken by men (63.64%). On the other hand, agricultural decision-making by women alone in the two sites has a low percentage (20% in Beni Souik and 22.73 in Branis).

Table 2. Socio-economic parameters of the enquired women in Beni Souik and Branis (%) (S.D = standard deviation

Parameters	Beni Swik			Branis		
	%	Mean	S.D	%	Mean	S.D
1. Age						
35-45 years	10			13.64		
45-55 years	15	3.8	0.8	0.00	2.18	0.59
55-65 years	60			45.45		
More than 65 years	15			40.91		
2.Education status						
Illiterate	75			27.27		
Primary education	5			18.18		
Secondary education	0			13.64		
Higher Secondary education	0	2.05	2.00	0.00	2.73	1.98
University education	0			9.09		
Alphabetisme	20			18.18		
3. Marital situation						
Single	0			4.55		
Married	90	2.1	0.3	77.27	2.18	0.59
Widow	10					
Divorced	0					
4. Family size						
Short (≤4 members)	0					
Average (4< members≤6)	0	3	0.00	4.55	2.59	0.80
Big (> 6 members	100					
5. Land ownership						
Man	95.45					
Woman	4.55	1.05	0.2	18.18	1.18	0.93
6. Occupation						
Agriculture	5					
Agriculture and animal breeding	95	0.95	0.22	5	0.95	0.22
7. Taking Farm Decisions						
Man	40					
Woman	20	2.00	0.9	13.64	1.59	0.85
Both	40			22.73		

3.2. Parameters related to participation in agricultural activities

3.2.1. Beni Souik site

In this site women are implicated in all agricultural activities either individually or together with man. The participation rate of women alone in agricultural activities was lower in irrigation (10%). Whereas, the men never do individually the sowing and planting, weeding, hoeing or harvesting. Thus, 65 % of women accomplish individually weeding. The work of men with women in Beni Souik was common in all activities and high rates of cooperation are registered in most agricultural activities such as sowing and plantation (85%) and soil preparation (80%).

Table 3. Rate of Beni Souik women implication in agricultural activities

Activities	Man (%)	Woman (%)	Man and woman (%)
Soil preparation	5	15	80
Sowing and plantation	0	15	85
Weeding	0	65	35
Fertilization	5	25	70
Hoeing	0	25	75
Irrigation	70	10	20
Harvest	0	20	80

2.2. Brains site

Brains women likewise Beni Souik women are involved in all agricultural activities with men. They are much busier than men in weeding (27.27%) and hoeing (31.82%). Though; soil preparation, irrigation and fertilization activities (72.73, 63.64 and 59.09 % respectively) are mainly carried out by men. However; the rate of participation in sowing and planting is equal between women and men (40.91%). On the other hand, the cooperation rate between men and women in weeding (50 %) and harvest (59.09%) is more important (tab.4).

Table 4. Rate of Beni Souik women implication in agricultural activities

Activities	Man (%)	Woman (%)	Man and woman (%)
Soil preparation	72.73	18.18	9.09
Sowing and plantation	40.91	40.91	18.18
Weeding	22.73	27.27	50.00
Fertilisation	59.09	18.18	22.73
Hoeing	22.73	31.82	45.45
Irrigation	63.64	18.18	18.18
Harvest	22.73	18.18	59.09

The similarity in gender agricultural activities between the two sites is obvious. Thus, women are much more occupied by weeding and hoeing whereas the irrigation activity is generally accomplished by men. Nevertheless, the cooperation appears in the joint work between men and women in all activities.

The difference in gender agricultural activity between the two sites was manifested in the participation of men alone in certain agricultural activities, in Beni Souik men individually accomplish only soil preparation and fertilization with a low percentage (5% for

each activity) while they accomplish irrigation alone with high percentage (70%). However, in Branis site, men participate alone in all agricultural activities and their participation rate is compromised between (22.73%) and (72.73%). Which is much higher compared to Beni Souik men. Besides, in this sites the percentage of women's participation without men's assistance in agricultural activities ranges between (18.18%) and (40. 91%).Thus, the rate of men cooperation with women is low in Branis site compared to Beni Souik with rate of cooperation between men and women in agricultural activities ranges between (20%) and (85%).

4. Discussion

The purpose of the study was to assess socio-economic situation of rural women working in agriculture activities in South East Algeria (Biskra region: Beni Souik and Branis sites).

Rural women in the two sites are occupied by agricultural activities and household activities in the same time like rural women in the different world areas [17; 18; 19; 20].

Beni Souk and Branis farms are characterized by a small surface due to inheritance system between family members in these regions; they are local family farms. Likewise, Tanzanian farms characterized by small land areas [21].

In the two sites the respondent rural women were mostly old (55-65 years) followed by the middle age (45-55 year). Thus, the older person generally is more experienced in farm [22] However, the young age presents the low group (less than 15%). This is attributed to young women having reproductive roles: this refers to the child-bearing and child-rearing responsibilities and added [9], food preparation and home upkeep decreases the participation of women in agriculture. Meanwhile; [23] reported that a farmer's experience illustrates how the arrival of children's changing needs can upset even carefully-considered earlier plans, as well as how childcare needs can influence a farm's labor structure.

Another factor is the community roles of women including healthcare, educational and cultural decisions as well as making household decisions and participation in community events. Though [24]; reported that, women' challenges are compounded in rural areas by a 'triple burden' as their time is constrained by productive, reproductive and community roles. In addition to the fact that actually young women are accomplishing their education which has prevent them from working in agriculture. Thus; in India, it is found that increasing enrolment of women in higher education is among factors of the female labor force participation rates fall [25]. [26] indicate that women have a very important productive role through parental responsibilities (the primary role to the reproduction of the workforce and a community management role). In addition, young women usually complete their studies and hold a management position. Thus, working in administrative jobs especially that many factories of brickyard in the region of Branis offer such opportunity to women in this region is preferable and more profitable than working in agriculture. This is similar to the study done by [27] who reported that the lack of interest in farming is greater in West Bengal than in Gujarat, possibly because farming is not profitable in this state. Around one-third of the interviewed women strongly noted their unwillingness to be associated with farming labor. Meanwhile; [28] reported that as in other regions, MENA (Middle East and North Africa) women are more likely than men to work as clerical support workers, technicians and (associate) professionals. However, unlike the global pattern, MENA women are more concentrated in agricultural occupations, and are less concentrated in the service and sales workers' groups than their male counterparts.

On the other hand, the very high rate of illiterate women in each site compared to other school levels is related to old women because they lived in the period before and after independence where the harsh living conditions prevented them from studying especially

the absence of infrastructure such as schools and transport, which made women's right to study very weak compared to men. That's why, the 1998 census showed that 63.2% analphabet in Algeria are women [29]. The illiteracy rate in both sites indicates that the national illiteracy program applied after independence is helping to reduce the number of illiterates. However, the low rate of young women participation in agriculture is due to the improvement of living conditions resulting from the dissemination of education. According to [30], the changes in economic and social status are related to education.

However, most of respondents in Beni Souik and Branis are married and have big size families; means that their reproductive and community management roles are more extended. Thus; [31] reported that in Ethiopia, where families are large, there are on average 2.2 women for 2.4 men working per hectare each day.

Women's farm production decisions with men were more important in Beni Souik than Branis. However, in this last site, farm production decisions by men alone were the most. Likewise, to the farm production decisions, the agricultural work of women with men in Beni Souik was more than Branis; this indicates that men in Beni Souik were highly dependent on women for agricultural activity and that agriculture in this site was a largely mixed activity between the two sexes, in contrast to the Branis site where rural women's access to land was low compared to rural women in Beni Souik. This is related to social background of each oases population as the oases of Beni Souik is the most far from Biskra city and is somehow more isolated than Branis. Obviously women in such case will be more creative and more implicated in agriculture sector. Thus; According to [32], women can be at the forefront of innovation and diversification in rural areas by developing new activities, products and services. Women often have the added advantage of an awareness and knowledge of local needs, and specific interpersonal and communication skills.

Further, Rural women in Beni Souik and Branis sites are involved in various agricultural activities, similar to rural women in Morocco, Pakistan and Oyo State cassava farming [33; 34; 17]. While rural women from Minya and Fayoum governorates in Egypt are not involved in some agricultural activities such as irrigation which is a men task [35]. Our inquiry results show that there is a sexual separation in farm work, add to the noticeable variance in the distribution of activities between women and men in the two sites.

Beside, Branis' women as Beni Souik' women were more implicated individually in wedding and hoeing activities than other agricultural activities. However, men are usually involved in irrigation activities. This can be explained by that gender and social norms affect the choice of different agricultural activities. Irrigation is mostly done by men as this activity can take place during time not favorable for women as in night as well as that water used in irrigation is subject to local rules of distribution and social norms does not permit women to negotiate with men about water distribution. Thus, [36] reported that there are regional differences in the distribution of roles in farming activities between women and men based on traditional social norms.

Through our investigation we can sum up that women implication in agriculture in this two oases is too limited and many respondents reported that women participation in agricultural activities in the two sites is in regression compared to previous time due to several factors similar to those reported by [37]; who indicated that the limitations of sociocultural factors on women, the migration of women from rural areas to urban areas, and the inability of the industrial sector to create employment for the female population leaving agriculture require addressing and discussing women's problems in rural areas, taking steps towards a solution and determining strategies.

Indeed, attraction of rural women to agriculture needs improving quantity and quality of agricultural activities. This is consolidated by [38].

5. Conclusions

Women play an important role in agricultural activities including breeding. Farmer women constitute a permanent non salaried workforce; they contribute indirectly in improving family income, and women likewise men are charged of all the agricultural activities. Women generally have fondness to weeding and hoeing. Their rate of participation is low in soil preparation, fertilization and irrigation, activities. This last activity is generally a hard task maintained by men.

Social norms, traditional values, physical ability and specially fondness of women for housekeeping, child care and social relations come into effect in assigning the responsibility to women for the three previous roles, which can hinder women's ability to engage completely in agriculture activities. Nevertheless, her role can be neglected or misunderstood. However, effective participation of rural women in agricultural activities requires that they benefit from technical organized assistance, from financial support in the framework to preserve the knowhow of rural women in both agricultural activities and farm products preparing in the vision to transmit that heritage to the young generation.

References

1. Yavuz, F., Terin, M., Shiwan, M. S., Akay, B., Güler, İ. O., Ağsu, K. An Analysis on Women Participation in Agricultural Production Activities: Case of Northeast Anatolia TRA1 Region. *TJAE*, 2018, 24 (2), 185-192. DOI: 10.24181/tarekoder.474478.
2. Devi, P. Women Participation in Agriculture: -A case study of Kathua district. *JETIR*. 2020, 7 (9), 1489-1498.
3. FIDA. Les femmes et le développement rural www.ifad.org, 2011.
4. FIDA. L'égalité des sexes et L'autonomisation des femmes, Politique. FIDA/GMB Akash. Varigratica. 54p. https://www.ifad.org/fr/-/l-%C3%A9galit%C3%A9-des-sexes-et-l-autonomisation-des-femmes-politique. 2012.
5. Chayal, K., Dhaka, B. L., Poonia, M. K., Tyagi, S. V. S., Verma, S. R. Involvement of farm women in Decision- making in Agriculture. *Stud Home Com Sci*, 2013, 7(1), 35-37.
6. Mekamcha, M. La situation de la femme dans le milieu urbain et rural. Revue Elmofaker, 2011, 7,11-17
7. Medouni, Y., Boulahchiche, N., Brahimi, R. Rôle de la femme rurale dans le système de production agropastoral. Cas de la fraction Ouled Baida de la zone d'El Guedid. Région de Djelfa (steppe centrale). In : Mena Y. (ed.), Castel J.M. (ed.), Morand-Fehr P. (ed.). Analyse technico-économique des systèmes de production ovine et caprine : méthodologie et valorisation pour le développement et la prospective. Zaragoza : CIHEAM / FAO / Universidad de Sevilla, (Options Méditerranéennes : Série A. Séminaires Méditerranéens, 2006, 70, 133-140.
8. Berchiche, T. Les gardiennes du savoir-faire culturel et agropastoral. Cas de la zone de Djelfa (Algérie). In : Lerin F. (ed.). Pastoralisme méditerranéen : patrimoine culturel et paysager et développement durable. Montpellier : CIHEAM / AVECC / UNESCO. (Options Méditerranéennes : Série A. Séminaires Méditerranéens, 2010, 93, 85-97.
9. Lahmadi, S., Bengouga, K., Maaoui, M., Zeguerrou, R., Belhamra, M., Halis, Y. Participation of rural women in agricultural activities in Algeria, the case of the commune of Maafa (South East Algeria). *Jour. Algé. Rég. Ar*, 2016, 13, 35-40.
10. Seltzer P. Le climat de l'Algérie. Volume 1; Carbonel: Alger, Algéie, 1946; 219p.
11. Dixon, J., Gulliver, A., Gibbon, D. Summary farming systems and poverty improving farmers' livelihoods in a changing world. FAO & World Bank: Rome, Italy & Washington, DC, USA, 2001; 49p.
12. Gallois, E. Aux Oasis d'Algérie et de Tunisie, avec illustrations. M.-R. Leroy : Vanves, France, 1900 ;120 p.
13. Monmarché, M. Constantine Biskra, El Kantara Timgad Tougourt. Les guides bleus illustrés. Librairie Hachette : Paris, France,1923 ; 77p.
14. Mallebay, E. Guide pratique de Biskra et de ses environs. Amand Beun libraire : Batna, Algérie, 1892 ; 56p.
15. Hurabielle, A. J. Au Pays du bleu. Biskra et les oasis environnantes. Augustin Challamel: Paris, France, 1899 ; 226p.
16. . تطور عدد سكان الولاية من 1966 إلى 2008. http://wilayabiskra.dz/?page_id=1673.2008. (accessed on Wilayabiskra)
17. Olagunju., O.E., Ariyo., O.C, Olafemi., S.O., Olagunju., O.S. Assessment of rural women participation in cassava farming in oyo state. *J. Sustain. Dev.*, 2020, 18 (1), 92-98.
18. Oluremi, O.A., Iderawumi, A. M. Contraints of women participation in Agriculture in rural area. *EC. Agriculture*, 2019, 5(5), 248-255.
19. Ababakr Haydar, S., AKbay,C. The obstacles of rural women participation in agricultural development in Erbil Province of Iraq. *AJAEES*. 2018, 22(1), 1-11.
20. Mamun-ur-Rashid.M., Kamruzzaman.,M., Mustafa. E. Women participation in Agricultural extension services in Bangladesh: Current Status, Prospects and Challenges. *BJEE*. 2017, 29(1&2), 93-107.
21. Mmasa, J. Participation of women in agriculture in Tanzania: challenges and policy recommendations. Clknet policy brief, 2013, 8, 1-11.
22. Kabir, M. H., Afroz, S., Alam, M.M., Rahman, M. S. Rural women's attitude and involvement in post-harvest processing of vegetables. *J. Anim. Plant Sci*,2023, 33 (2), 303-309. https://doi.org/10.36899/JAPS.2023.2.0622.
23. Rissing, A., Inwood, S., Stengel, E. The invisible labor and multidimensional impacts of negotiating childcare on farms. *Agric Human Values*, 2021, 38(2), 431–447. https://doi.org/10.1007/s10460-020-10162-1.
24. *WFP. Gender Policy 2015-2020. 2015, 30p.*

25. Ghai, S. The Anomaly of Women's Work and Education in India. ICRIER, India, 2018. 56p.
26. Behera, B. S., Behera, A. C. Gender Issues: The Role of women in Agriculture sector in India. *IJMFSMR*, 2013, 2(9), 134-145.
27. Pattnaik, I., Lahiri-Dutt., K. Do women like to farm? Evidence of growing burdens of farming on women in rural India. *J Peasant Studies*, 2022, 49(3):629–651. https://doi.org/10.1080/03066150.2020.1867540.
28. OECD/ILO/CAWTAR. Changing Laws and Breaking Barriers for Women's Economic Empowerment in Egypt, Jordan, Morocco and Tunisia, Competitiveness and Private Sector Development, OECD Publishing, Paris, https://doi.org/10.1787/ac780735-en. 2020.
29. Poncet., M. L'alphabétisation en Algérie. Economie & Humanisme, 2002, 363 ,59-61.
30. Rais, M.U.N., Solangi, A.W., Sahito, H.A. Economic assessment of rural women involved in agriculture and livestock farming activities. *WJAR*, 2013, 2(4), 115 – 121.
31. Rapsomanikis, G. The economic lives of smallholder farmers an analysis based on household data from nine countries. FAO: Rome, Italy, 2015, 48p.
32. Franić, R., Kovačićek, T. The professional status of rural women in the *EU. European Union*, 2019. 70p.
33. Zrira, S. Rôle de la femme dans le secteur irrigué au Maroc. Report/ratio of the Ministry for Agriculture and fishing in Morocco. FAO. http://www.gewamed.net/share/img_documents/49_maroc_rapport_zrira. 2006.
34. Luqman, M., Ashraf, E., Yousuf, H.M.Z., Butt, T. M., & Iftikhar, N. Extent of rural women's participation in Agricultural activities. *I JAMD*, 2012, 2(1), 25-32.
35. Sedke Abd El Wahab El Said, M. Environmental awareness levels of rural women to maintenance some agricultural natural resources in Minya and Fayoum governorates. *Egypt. J. Agric. Res*, 2017. 95 (1), 497-526
36. Najjar, D., Baruah, B., Garhi, A. Making Egyptian women's agricultural labor visible and improving their access to productive assets. Policy Brief. Cairo, ICARDA. (also available at: https://repo. mel.cgiar.org/handle/20.500.11766/9428). 2019.
37. Bahçeci M., Baykal,D., Engindeniz S. Women Labor Employment in The Agriculture Sector: A Review on Turkey. International Conference on Women Empowerment in the World (ICWEW-2020) At: Tradepreneur Global Academic Platform, Southampton-UK.2020.
38. OECD & ASEAN. Strengthening Women's Entrepreneurship in Agriculture in ASEAN Countries. OCED, Canada. 2021, 88p.