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PLANT PROTECTION ADVISORY SERVICES PROVIDED BY AGRI-INPUT DEALERS ON POMEGRANATE CROP

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Abstract:
Aims: To study the Plant protection advisory services provided by Agri-input dealers on pomegranate crop, to study the constraints faced by Agri-input dealers while providing advisory services, to obtain the suggestions from the Agri-input dealers to overcome the constraints.
Study Design: Ex-post facto research design was used for the study
Place and Duration of the Study: Department of Agricultural Extension and Communication, MPKV, Rahuri, between August 2020 and July 2021.
Methodology: The present study was conducted in two tehsils Malshiras and Pandharpur, Solapur district of Maharashtra with sample size of 120 respondents from 12 villages, 6 villages from each tehsil Malshiras and Pandharpur Respectively. The data was collected on plant protection advisory services provided by Agri-input dealers on pomegranate crop, constraints and suggestions given by the Agri-input dealers.
Results: As regards plant protection advisory services provided by Agri-input dealers on pomegranate crop it was observed from that, majority of Agri-input dealers 64.17 per cent comes under medium level of plant protection advisory services followed by20.00 per cent Agri-input dealers who were found under high level of providing plant protection advisory services to the farmers and 15.83 per cent represented the lower category. The important constraints reported by majority of the respondents during providing plant protection advisory to farmers were Agri-input dealers faced the constraints that farmers were not shared detail information regarding previously used pesticides or insecticide, Inadequate time for farm visits, Less preferred paid advisory by the farmers, Lack of coordination and networking in Agri-input dealers in providing advisory to farmers and Lack of information on climate change/variability before advising farmers on plant protection advisory services.
Conclusion: An overview of findings revealed that most of the Agri-input dealers were almost medium in providing advisory services. Hence the extension functionaries need to give attention to focus on capacity building of Agri-input dealers in providing accurate plant protection advisory to farmer.

Key Words: Advisory Services, Agri-Input Dealers, Agricultural Extension, Pomegranate Crop

1. Introduction:

In India, there are about 2.82 lakh practicing Agri-input dealers, who are the prime source of farm information to the farming community. The first contact point for majority of farmers is the Agri-input dealers. While purchasing different agricultural inputs required for farming operations, the farmer naturally tries to find out from the Agri-input dealer about the usage of inputs, both in terms of quality and quantity. Agricultural inputs and advisory services provide basis for quality production (Singh, et al. 2020). Agri-input dealers are not only supply agriculture inputs but also, they provided agro advisory services to farmers on cultivation practices of various crops on paid basis. Agri-input dealers provided advisory from ploughing to post harvest operations like variety selection, improved varieties and their characteristics, weed management, nutrient management, deficiency of nutrients, drought stress management, pest management, disease management, disorders of different crop, spraying schedule of pesticides for different crop, water management of various crop, harvesting of crops, information on farm machinery, cattle feeding and rearing, information on milking machine. They also provided advisory on marketing of vegetable and horticulture farm produce, packing of agriculture produce, how to reduce handling losses during harvesting of farm produce, how to maintain the quality of the farm produce and providing information related to new technologies. They also facilitate demonstration of new varieties of seeds, pesticides, herbicides and we decide in farmer's field in collaboration with companies which is helpful to farmers to known about usefulness of new technologies. The majority of the farmers are depend on the Agri-input dealers for advisory services. Advisory services helped the farmers to increase their knowledge about farming practices which include information about modern technologies and best practices.

In Maharashtra pomegranate crop is mostly affected by oily spot disease also affected by fruit rot disease, wilt disease and different pests like fruit borer, fruit sucking moth, Root knot nematodes due to this most of the farmers seek advisory on plant protection services provided by Agri-input dealers (Surana, 2016). Even though various attempts were made by Ministry of Agriculture Government of India. It has seen that advisory services provided by Agri-input dealers is not up to the mark. The majority of Agri-input dealers sold agriculture inputs to farmers as per commission or incentives received from the pesticide or fungicide company.

Keeping the above facts in mind, the present study was designed to understand which plant protection advisory services provided by Agri-input dealers on pomegranate crop in Solapur district of Maharashtra. The findings of the study will be useful to the extension administrators, other extension agencies, extension personnel and others who are involved in the transfer of technology and technology generation as reference material for bringing about appropriate policies, strategies and programmes in order to make Agri-input dealers agro advisory more profitable to farmers.

The study has found out the constraints faced by the Agri-input dealers which will be helpful for the concerned agencies or individual. The scope of this investigation was confined to the study of plant protection advisory services provided by Agri-input dealers on pomegranate crop in Solapur district of Maharashtra. This study was expected to be directly useful in designing effective extension strategies to improve knowledge for providing advisory services of the Agri-input dealers in Solapur district of Maharashtra. This study generated empirical data on plant protection advisory service provided by Agri input dealers on pomegranate crop, thus narrowed data gap in this area. The study is carried out with following objectives:

- To study plant protection advisory services provided by Agri-input dealers on the pomegranate crop
- To study the constraints faced by Agri-input dealers while providing advisory services.
- To study the Suggestions given by Agri-input dealers to overcome the constraints.

2. Methodology:

The present study of plant protection advisory services provided by Agri- input dealers on pomegranate crop was conducted in Solapur district, in the state of Maharashtra. In Solapur district there are eleven tehsils, out of which two tehsils namely Malshiras and Pandharpur are selected randomly for the study. The Agri-input dealers were selected from both rural and urban areas. From each tehsil 6 villages were selected and from each selected villages 10 Agri-input dealers have selected randomly, i.e., total 60 Agri-input dealers selected from each of the tehsils. Thus total 120 Agri-input dealers have selected for the study. To study the plant protection advisory services an interview schedule was developed and responses are recorded by the actual behavior of the Agri-input dealer which is relevant to the plant protection advisory services provided by them. In general, questions were asked to measure the dependent variable plant protection advisory services provided by Agri-input dealers. Some questions are Yes/No type and some are open ended type questions, for Yes/No we gave 1and 0 score respectively. For open end type questions, we took actual score of responses given by Agri-input dealers. The Agri-input dealers were personally interviewed and responses were collected on:

- Weed management
- Disease management
- Pest management
- Management of disorders of pomegranate crop
- Constraints and suggestions

The data thus collected was organized and tabulated using simple statistical method, tables and percentage.

3. Result and Discussion:

3.1 Weed Management:

From Table 1 it was found that majority of Agri-input dealers 60.83 percent provided advisory on Integrated weed Management (IWM). Agri-input dealers suggested different method for weed management about 80.83 per cent advised to use cultural method, 86.66 percent advised to use chemical method, 84.16 percent advised to use mechanical method. Under mechanical method for weed management, large majority 80.00 percent Agri-input dealers advised for deep ploughing in summer, 76.66 per cent advised for hand weeding and burning. Under cultural method for weed management, large majority 80.83 per cent advised to keep field fallow before planting and 73.33 per cent advised to remove weeds before flowering. Under the chemical control for weed management, large majority 70.00 per cent Agri-input dealers advised to use pre-emergence weedicide like Round Up and 80.00 per cent Mera -71. Large majority 75.00 per cent Agri-input dealers advised to use post emergence weedicide like sweep power and 78.33 per cent Agri-input dealers advised to use Gramoxone.

Table 1: Distribution of the Agri-input Dealers according to Plant Protection Advisory Services provided by the mon Weed Management

S.No	Indicators	Advisory provided by Agri-input dealers on Weed Management	Frequency	Percent
1.	Integrated Weed Management	Integrated Weed Management	73	60.83
2.	Weed Management Methods	Cultural method	97	80.83
		Chemical method	104	86.66
		Mechanical method	101	84.16
3.	Weed management Mechanical method	For deep ploughing in summer.	96	80.00
		For hand Weeding and burning.	92	76.66
4.	Weed management cultural	To Keep field fallow.	97	80.83

	method	To remove weeds before flowering	88	73.33
5.	Chemical control For weed management	Pre emergence		
		Round Up	84	70.00
		Mera71	96	80.00
		Post emergence		
		Sweep power	90	75.00
		Gramoxone	94	78.33

3.2 Disease Management:

Agri-input dealer provided advisory for control of disease of Pomegranate crop. The detailed plant protection advisory regarding disease management presented in Table -2

Table 2: Distribution of the Agri-input Dealers according to Plant Protection Advisory Services provided by the mon Disease Management

S.No	Indicators	Advisory provided by Agri-input dealers on Disease Management	Frequency	Percent
1.	Integrated disease Management	Advised on Integrated Disease Management	95	79.16
2.	Bacterial blight disease	Management of bacterial Blight disease	120	100.00
3.	Preventive measures for bacterial blight Disease management	Selection of disease-free seedlings.	90	75.00
		Planting seedlings at right time and at recommended spacing.	83	69.16
		Avoiding water logging conditions.	100	83.33
		Collection and destruction of Plant debris.	97	80.83
		Irrigating crop at critical stage.	107	89.16
4.	Chemical control for management of bacterial blight disease	Bronopol	94	78.33
		Blitox	78	65.00
		CabrioTop	104	86.66
		Captap	83	69.16
		Amistar	91	75.83
		Roko	95	79.16
5.	Biological control for management of Bacterial blight disease	Neemkaranj	101	84.16
		Zanthonil	97	80.33
		Sunami-40	108	90.00
6.	Fruit rot disease	Advised on management of Fruit rot disease	120	100.00
7.	Preventive measures for management of fruit Rot disease	Selection of Hastaor Ambe bahar.	75	62.25
		Keeping wider plant spacing And yearly pruning of trees.	86	71.66
		Proper disposing of diseased Leaves, twigs and fruits.	92	76.66
8.	Chemical control for management of fruit rot disease	Bavistin0.1%	106	88.33
		CabrioTop	94	78.33
		Benomyl	99	82.50
		Kavach	102	85.00
		Sulfur	108	90.00
		Amistar	104	86.66
9.	Biological control for management of fruit rot disease	Neemkaranj	108	90.00
		Starmeal	98	81.66
		Orbit	89	74.16
10.	Leaf spot and fruit spot disease	Management of leaf spot and Fruit spot disease	120	100.00
11.	Preventive measures for management of leaf spot and fruit spot disease	Use of healthy seedlings from Certified nurseries.	86	71.66
		Proper fertigation to increase Plants natural resistance.	98	81.66
		Pruning and collection of Diseased fruits and twigs.	105	87.50
		Collection and destruction of affected	111	92.50

		fruits by burning		
12.	Chemical control for management of leaf spot and fruit spot disease	IndofilZ-78	103	85.83
		Score	99	82.50
		Captaf	110	91.66
		Bavistin	96	80.00
		Tilt	105	87.50
		MacobanM-45	98	81.66
13.	Biological control for management of leaf spot and fruit spot disease	Orbit	91	75.83
		Milestone	98	81.66
		Biosar Tricho	106	88.33
14.	Wilt disease	Management of the wilt disease	120	100.00
15.	Preventive measures for management of wilt disease	Removal and destruction Infected plant material.	111	92.50
		Disinfecting pruning and grafting Tools before and after use.	93	77.50
		Ensure sufficient space among trees.	101	84.16
		Avoiding poor drainage in field condition	106	88.33
		Take care that plant not injured During field work.	94	78.33
16.	Chemical control for management of wilt disease	Hamala	113	94.16
		Bumper	101	84.16
		Neon	110	91.66
17.	Biological control for Management of wilt disease	BiosarTricho	105	87.50
		Fusarium	99	82.50
		Sulphur	88	73.33

From above Table 2 it was observed that cent per cent of Agri-input dealers provided advisory on disease management of pomegranate crop. Large majority of Agri-input dealers 79.16 percent provided advisory on Integrated Disease Management of pomegranate crop. Cent per cent of Agri-input dealers advised on management of bacterial blight disease of pomegranate crop. Under preventive measures for management of bacterial blight disease of pomegranate, large majority of Agri-input dealers 75.00 per cent advised on selection of disease free seedlings, majority 69.16 per cent advised for planting seedlings at right time and recommended spacing,83.33 per cent Agri-input dealers advised for avoiding water logging condition in field,80.83 per cent advised for collection and destruction of plant debris and 89.16 per cent advised for irrigating plant at critical stage.

Under chemical control for management of bacterial blight disease of pomegranate, large majority of Agri-input dealers 78.33 percent advised to use Bronopol, majority 65.00 per cent advised to use Blitox, 86.66 per cent advised to use Cabrio Top, 69.16 per cent advised to use Captap, 75.83 per cent advised to use Amistarand 79.16 percent advised to use Roko. Under biological control for management of bacterial blight disease of pomegranate, large majority of Agri-input dealers 84.16 percent advised to use Neemkaranj, 80.33 per cent advised to use Zanthonil and 90.00 per cent advised to use Sumani-40. Cent percent of Agri-input dealers provided advisory services on management of fruit rot disease of pomegranate crop. Under preventive measures for management of fruit rot disease of pomegranate, majority of Agri-input dealers 62.50 per cent advised for selection of Hastaor ambe bahar, large majority 71.66 per cent Agri-input dealers advised kept wider plants pacing and do yearly pruning of trees and 76.66 per cent Agri-input dealers advised for proper disposing of diseased leaves, twigs and fruits.

Under the chemical control for the management of fruit rot disease of pomegranate, large majority of Agri-input dealers 88.33 percent advised to use Bavistin. 0.1%, 78.33 percent advised to use Cabrio Top, 82.50 percent advised to use Benomyl, 85.00 per cent advised to use Kavach, 90.00 per cent advised to use Sulfur and 86.66 percent advised to use Amistar. Under the biological control for the management of fruit rot disease of pomegranate, large majority of Agri-input dealers 90.00 percent advised to use Neemkaranj, 81.66 per cent advised to use Starmeal and 74.16 per cent advised to use Orbit.

Cent percent of Agri- input dealers provided advisory services on management of leaf spot and fruit spot disease of pomegranate crop. Under preventive measures for management of leaf spot and fruit spot disease of pomegranate crop, large majority of Agri-input dealers 71.66 per cent advised use of healthy seedlings from certified nurseries, 81.66 percent advised for proper fertilization to increase plant natural resistance, 87.50 per cent Agri-input dealers advised for pruning and collection of diseased fruits and twigs and 92.50 per cent advised for collection and destruction of affected fruits by burning. The chemical control for management of leaf spot and fruit spot disease of pomegranate, large majority of Agri-input dealers 85.83 per cent advised to use Indofil Z-78, 82.50 per cent advised to use Score, 91.66 percent advised to use captaf, 80.00

percent advised to use Bavistin, 87.50 per cent advised to use Tilt and 81.66 per cent Agri-input dealers advised to use MacobanM-45. Under the biological control for management of leaf spot and fruit spot disease of pomegranate crop, large majority of Agri-input dealers 75.83 per cent advised to use Orbit, 81.66 per cent advised to use Milestone and 88.33 per cent advised to use Biosar Tricho.

Cent percent of Agri-input dealers provided advisory services on management of wilt disease of pomegranate crop. Under preventive measures for management of wilt disease of pomegranate crop, large majority of Agri-input dealers 92.50 percent advised for removal and destruction of infected plant material, 77.50 percent Agri-input dealers advised disinfecting pruning and grafting tools before and after use,84.16 per cent Agri-input dealers advised to ensure sufficient space among trees,88.33per cent Agri-input dealers advised for avoiding poor drainage and 78.33 per cent Agri-input dealers advised to take care that not to injure trees during field work. Under the chemical control for management of wilt disease of pomegranate crop, large majority of Agri-input dealers 94.16 per cent advised to use Hamala, 84.16 percent advised to use Bumper and 91.66 percent advised to use Neon.

Under the biological control for management of wilt disease of pomegranate crop, large majority of Agri-input dealers 87.50 per cent advised to use Biosar Tricho, 82.50 per cent advised to use Fusarium and 73.33 per cent of Agri-input dealers advised to use Sulphur. The probable cause might be due to plant diseases, huge losses found in production of crop so disease management is most important practice. Pomegranate crop badly affected by “bacterial blight disease” in the area under study so farmers required advisory for control of bacterial blight disease and other diseases like fruit rot disease, leaf spot and fruit spot disease and wilt disease. Hence, this kind of result were revealed.

These findings are matched with the findings of Kaur (2006)

3. Pest Management:

Pests are adversely affected on plant which reduces production and quality of fruit. For control of pests Agri-input dealers advised to farmers to use cultural, chemical and biological method. The detailed plant protection advisory regarding pest management of pomegranate crop presented in Table 3.

Table 3: Distribution of the Agri-input dealers according to plant protection advisory services provided by the mon Pest Management

S.No	Indicators	Advisory provided by Agri-input dealers on Pest Management	Frequency	Percent
1.	Integrated pest management	Advised on Integrated Pest Management	91	75.83
2.	Fruit borer pest	Management of fruit borer pest	120	100.00
3.	Cultural control for management of fruit borer pest	Removal and destruction Affected fruits.	103	85.33
		Bagging of fruits before Maturity with butter paper.	95	79.16
4.	Chemical control for management of Fruit borer pest	Tafgor	114	95.00
		Korazen	94	78.33
		Sumfol	103	85.33
		Fencor	97	80.83
		Fenta	116	96.66
		Sumicidin3E.C.	108	90.00
5.	Biological control for management of Fruit borer pest	Tricho	98	81.66
		Milestone	104	86.66
		Bactramycine	115	95.83
		Bio-303	106	88.33
		Tracer	93	77.50
		DamanA47	102	85.00
6.	Fruit sucking moth	Management of the fruit Sucking moth	120	100.00
7.	Cultural control for Management of fruit sucking moth	Removal of alternate hosts like Amrutvel and Vasanvel.	107	89.16
		Collection and destruction moths by using torch at night.	101	84.16
8.	Chemical control for management of fruit sucking moth	Karate	114	95.00
		Matador	101	84.16
		Antak	110	91.66
		Regent	103	85.83
		Imidor	91	75.83
		Super-D	112	93.33
9.	Biological control for management of fruit sucking	Bio-303	102	85.00
		Tracer	115	95.83

	moth	Daman-47	111	92.50
		Proclaim	105	87.50
10.	Root knot nematodes	Management of Root knot nematode	120	100.00
11.	Cultural control for management of Root knot nematodes	Selection of nematode free seedlings before planting in orchard.	105	87.50
		Advised for Soil solarization.	109	90.83
12.	Chemical control for management of Root knot nematodes	Carbon	98	81.66
		Monterey	91	75.83
		Nematobax	101	84.16
		Voliamflexi	94	78.33
		Velumprime	103	85.83
13.	Biological control for management of Root knot nematodes	Pacil	113	94.16
		Nemaspreader	102	85.00
		Silvox	108	90.00
		Nematoz-P	87	72.50
		Nematriden	107	89.16

From above Table 4.23 it was observed that all the Agri-input dealers provided advisory on pest management of pomegranate crop. Large majority of Agri-input dealers 75.83 percent provided advisory services on Integrated Pest Management of pomegranate crop. Cent percent of Agri-input dealers provided advisory services on management of fruit borer pest of pomegranate crop. Under cultural control for management of fruit borer pest of pomegranate, large majority of Agri-input dealers 85.33 per cent advised for removal and destruction affected fruits and 79.16 per cent advised for bagging of fruits before maturity with butter paper.

Under chemical control for management of fruit borer pest of pomegranate, large majority of Agri-input dealers 95.00 percent advised to use Tag for, 78.33 per cent advised to use Korazen, 85.33 per cent advised to use Sumfol, 80.83 percent advised to use Fencor,96.66 per cent advised to use Fenta and 90.00 per cent Agri-input dealers advised to use Sumicidin3 EC. Under biological control for management of fruit borer pest of pomegranate, large majority of Agri-input dealers 81.66 percent advised to use Tricho, 86.66 percent advised to use Milestone, 95.83 percent advised to use Bactramycin, 88.33 per cent advised to use Bio303, 77.50 per cent advised to use Tracer and 85.00 percent Agri-input dealers advised to use Daman-A47.

Cent percent of Agri-input dealers provided advisory services on management of fruit sucking moth of pomegranate crop. Under cultural control for management of fruit sucking moth of pomegranate, large majority of Agri-input dealers 89.16 per cent advised for removal of alternate hosts like Amrutvel and Vasanvel and 84.16 per cent Agri-input dealers advised for collection and destruction of moths by using torch at night. Under the chemical control for the management of fruit sucking moth of pomegranate, large majority of Agri-input dealers 95.00 percent advised to use Karate, 84.16 per cent advised to use Matador, 91.66 per cent advised to use Antak, 85.83 percent advised to use Regent, 75.83 per cent advised to use Imidor and 93.33 percent advised to use Super-D.

Under the biological control for the management of fruit sucking moth of pomegranate, majority of Agri-input dealers 85.00 per cent advised to use Bio 303, 95.83 percent advised to use Tracer, 92.50 percent advised to use Daman- 47 and 87.50 percent advised to use Proclaim. Cent percent of Agri-input dealers provided advisory services on management of Root knot nematodes in pomegranate crop. Under cultural control for management of Root knot nematodes, large majority of Agri-input dealers 87.50 per cent advised for selection of nematode free seedlings before planting in orchard and 90.83 per cent Agri-input dealers advised for soil solarization. Under the chemical control, for management of Root knot nematodes, large majority of Agri-input dealers 81.66 per cent advised to use carbon, 75.83 percent advised to use Monterey,84.16percent advised to use Nematobax, 78.33 percent advised to use Voliam flexi and 85.83 per cent Agri-input dealers advised to use Veliumprime.

Under the biological control, for management of Root knot nematodes, large majority of Agri-input dealers 94.16 per cent advised to use Pacil, 85.00 percent advised to use Nemaspreader, 90.00 percent advised to use Silvox, 72.50 per cent advised to use Nematoz-P and 89.16 percent Agri-input dealers advised to use Nematriden. The possible cause might be that different pests like fruit borer, fruit sucking moth and Root knot nematodes are adversely affected pomegranate crop which reduces production and quality of fruits per plant Farmers did not understand which insecticide or pesticide to be used for control of pests. Farmers need proper advisory for control of different pests. Hence this kind of result may be revealed.

- These findings are similar with findings of Kaur (2006).

3.4. Disorders of Pomegranate:

Different disorders found in pomegranate which adversely affected on seasons yield and quality of fruit For control of pomegranate disorders Agri-input dealers advised to farmers which precaution must be

taken and which chemicals, micronutrients and growth regulators are useful. The detailed advisory on disorders of pomegranate crop presented in Table 4.

Table 4: Distribution of the Agri-input dealers according to plant protection advisory services provided by the mon disorders of pomegranate crop

S.No	Indicators	Advisory provided by Agri-input dealers on Disorders of pomegranate crop	Frequency	Percent
1.	Management of disorders of pomegranate crop	Advised on the management of disorders of pomegranate crop	120	100.00
2.	Sunscald disorder	Management of sunscald disorder	120	100.00
3.	Cultural control for management of Sunscald disorder	Bagging the fruits to protect them from direct sunlight.	84	70.00
		For avoiding heavy pruning.	78	65.00
4.	Chemical control for management of sunscald disorder	Green miracle	105	87.50
		Silicxol	99	82.50
		Silicon	81	67.50
5.	Management of fruit cracking and splitting disorder	Management of fruit cracking and splitting disorder	120	100.00
6.	Preventive measures for management of fruit cracking and splitting disorder	Cultivate tolerant varieties.	79	65.83
		Irrigating plant from fruit setting to maturity with adequate quantity of water at regular intervals.	113	94.16
7.	Chemical control for management of fruit cracking and Splitting disorder	Calcium compounds	91	75.83
		Boron0.2%	104	86.66
		GA3at 120ppm	95	79.16
8.	Internal Breakdown disorder	Management of Internal Breakdown disorder	120	100.00
9.	Cultural control for Management of internal breakdown disorder	Advised to give proper Irrigation to maintain humidity.	91	75.83
		Harvesting fruit Sassoon as they mature.	109	90.83
10.	Chemical control for Management of internal Breakdown disorder	Phenoplix	97	80.83
		Roko	111	92.50

From above Table 4 it was observed that cent per cent of Agri-input dealers provided advisory on disorders of pomegranate crop. Cent per cent of Agri-input dealers provided advisory services on management of sunscald disorder of pomegranate crop. Under cultural control for management of pomegranate sunscald disorder, majority of Agri-input dealers 70.00 per cent advised Bagging the fruits to protect them from direct sunlight and 65.00 percent advised for avoiding heavy pruning. Under chemical control for management of pomegranate sunscald disorder, large majority of Agri-input dealers 87.50 percent advised to use Green miracle, 82.50 per cent advised to use Silicxol and 67.50 per cent Agri-input dealers advised to use Silicon. Cent percent of Agri-input dealers provided advisory services on management of fruit cracking and splitting disorder of pomegranate crop.

Under preventive measures for management of pomegranate fruit cracking and splitting disorder, majority of Agri-input dealers 65.83 percent advised to cultivate tolerant varieties and 94.16 per cent advised irrigating plants from fruit setting to maturity with adequate quantity of water at regular intervals. Under the chemical control for the management of pomegranate fruit cracking and splitting disorder, large majority of Agri-input dealers 75.83 percent advised to use calcium compounds, 86.66 per cent Agri-input dealers advised to use Boron 0.2 % and 79.16 percent Agri-input dealers advised to use GA3at 120 ppm. Cent percent of Agri-input dealers provided advisory services on management of Internal breakdown disorder of pomegranate crop. Under cultural control for management of pomegranate Internal breakdown disorder, large majority Agri-input dealers 75.83 per cent advised to give proper irrigate to maintain humidity and 90.83 per cent Agri-input dealers advised for harvesting fruits as soon as they mature.

Under the chemical control for management of the Internal breakdown of the pomegranate disorder about 80.83 per cent advised to use phenoplix and 92.50 percent advised to use Roko. The possible cause might be disorders like fruit cracking and splitting disorder, sunscald and Internal Breakdown disorder found in pomegranate crop which affect on quality of fruit which reduces market value of fruit due to this farmers going through huge losses. Farmers take advisory from Agri-input dealers for curing of disorders and increase quality of fruit. Hence this kind of result revealed.

- These findings are matched with findings of Kaur (2006).

3.5 Constraints and Suggestions of the Agri-Input Dealers:

3.5.1 Constraints Faced by the Agri-Input Dealers in Providing Plant Protection Advisory Services:

The data regarding constraints faced by Agri-input dealers is given in Table 5.

Table 5: Distribution of Agri-input dealer according to the constraints faced by them while providing plant protection advisory services

S.No	Constraints	Agri-Input Dealers (n=120)	Rank
1.	Farmers not shared detail information regarding previously used pesticides or insecticides.	110 (91.66)	I
2.	Inadequate time for farm visits	93 (77.50)	II
3.	Less preferred paid advisory by the farmers.	69 (57.50)	III
4.	Lack of coordination and networking in Agri-input dealers in providing advisory to farmers	47 (39.16)	IV
5.	Lack of information on climate change/variability before advising farmers on plant Protection advisory services.	28 (23.33)	V

The data presented in Table 5 revealed that large majority of Agri-input dealers i.e. 91.66 per cent faced constraints were farmers not shared detail information regarding previously used pesticides or insecticide, Inadequate time for farm visits 77.50 per cent, Less preferred paid advisory by the farmers 57.50 per cent, Lack of coordination and networking in Agri-input dealers in providing advisory to farmers 39.16 per cent and Lack of information on climate change/variability before advising farmers on plant protection advisory services 23.33 percent.

3.5.2 Suggestions given by the Agri-input dealers to avoid the Constraints faced by them while providing plant protection advisory to farmers.

An attempt was made to study the suggestions offered by the Agri-input dealers. The data is presented in Table 6. The data presented in Table 6 depicted that Farmers should have kept the record of previous used pesticides and insecticides 86.66 percent, manufacturer/company should provide transport facility for field visits to input dealers for providing plant protection advisory services through field visits 74.16 per cent , needs to sensitize farmers for obtaining advisory from para extension workers 55.83 per cent ,government should have make an association or organization of Agri-input dealers for obtaining uniform advisory of different crops 44.16 per cent, farmers should provide feedback to the input dealers about the performance of plant protection advisory services in the field 37.50 percent, and Agri-input dealers also suggested that Awareness programme on climate change / variability needs to be designed for Agri-input dealers as well as for farmers 30.83 per cent.

Table 6: Distribution of Agri-input dealers according to suggestions given by them to avoid the constraints faced by them while providing plant protection advisory to farmers

S.No	Suggestions	Agri-Input Dealers (n= 120)	Rank
1.	Farmers should have kept the record of Previously used pesticides and insecticides.	104 (86.66)	I
2.	Manufacturer/company should provide transport facility for field visits to Agri-input dealers for providing plant protection Advisory services through field visits.	89 (74.16)	II
3.	Needs to sensitize farmers for obtaining Advisory from para extension workers.	67 (55.83)	III
4.	Government should have make a association or organization of agri–input dealers for obtaining uniform advisory of different crops.	53 (44.16)	IV
5.	Farmers should provide feedback to Agri-input dealers about the performance of plant protection advisory services in the field.	45 (37.50)	V
6.	Awareness programme on climate change/Variability needs to be designed for Agri-input dealers as well as for farmers.	37 (30.83)	VI

4. Conclusion:

An overview of findings revealed that most of the Agri-input dealers were almost medium in providing advisory services. Hence the extension functionaries need to give attention to focus on capacity building of Agri-input dealers in providing accurate plant protection advisory to farmers.

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6. Competing Interests:

Authors have declared that no competing interests exist.

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8. Definitions, Acronyms, Abbreviations:

%	:	Percent
Agril.	:	Agriculture
ASC		Agro Service Centre
BSKKV	:	Balasaheb Sawant Konkan Krishi Vidyapeeth
CIGs	:	Commodity Interest Group
etal	:	Etalia (And Other)
etc.	:	Etcetra
Fig.	:	Figure
FPOs	:	Farmers Producers Organization
i.e.	:	That Is
J	:	Journal
KVK	:	Krishi Vigyan Kendra
MPKV	:	Mahatma Phule Krishi Vidyapeeth
No.	:	Number
PDKV	:	Panjabrao Deshmukh Krishi Vidyapeeth
PGI	:	Post Graduate Institute
Ph.D	:	Doctor Of Philosophy
PUC	:	Pre Unversity Course
Sr.No.	:	Serial Number
Unpub	:	Unpublished
viz.,	:	Videlicet(Namely)
VNMKV	:	Vasantrao Naik Marathwada Krishi Vidyapeeth