No. 29-51/2016(EFP) -Udyan-IV-Vol-II
Directorate of horticulture
Himachal Pradesh, Shimla-2

From:

Director of Horticulture
Himachal Pradesh, Shimla-2

To:

1. Addl. Director of Horticulture,
   Dharamshala, District Kangra, H.P.
2. All Dy. Director of Horticulture,
   in Himachal Pradesh.

Dated: Shimla-2 Mar., 2017.

Subject: - **Revision of norms of "Evaluation Criteria of Fruit Trees in Himachal Pradesh".**

Kindly find enclosed herewith photocopy of the letter No. HTC-G(11)-1/2016- dated 01-03-2017 received from the Principal Secretary (Hort.) to the Government of Himachal Pradesh vide which the approval has been accorded for the implementation of existing compensation formula i.e. **"Evaluation Criteria of Fruit Trees in Himachal Pradesh"** on the basis of present price index and the same shall be effective with immediate effect.

As you are aware that presently for the evaluation of fruit trees in Himachal Pradesh, a "dynamic and scientific formula" is being implemented by the Department of Horticulture for assessment of fruit trees in the event of acquisition of orchards / land for developmental purposes in the State. The photocopies of the **"Evaluation Criteria of Fruit Trees in Himachal Pradesh" which came in to effective after revision in the year 2001** is being enclosed herewith at **Annexure-I for** ready reference and ensure that all Technical Officers viz. SMS/HDOs concerned in Head Quarter/ Development Blocks/ PCDOs could get the copy of the existing formula for ready reference for effective implementation of the same.

In this context, as per the approval of the Government vide letter referred above, the implementation of the existing compensation formula for better compensation to the affected farmers/ Orchardists in the State has to be exercised by the Department immediately at your level. The price index/ composite index values of Horticultural commodities/ inputs/other articles were obtained from the Economic Advisor to the Government of Himachal Pradesh vide letter No. PLG.E.S.H (B)F (2)-1/75-V-7080 dated 04-10-201 and the composite index of the same is 201.30 for the year 2015-16.

Therefore, the final compensation shall be derived as under:

Only for example purpose:-

Shri. Sanjeev Sharma
09/03/2017

Evaluation of apple (Standard)fruit tree at 7 years of age as per "Evaluation Criteria of Fruit Trees in Himachal Pradesh" 2001 and on the basis of whole sale price index(Composite index) for year 2015-16 is given as under :

7 –years old Apple fruit tree(Standard) :-

1} Basic Value (BV) = Rs. 774/-

2} Net Present value (NPV) = 38 x (514*-318) x 0.25612

=38 x 196 x 0.25612

NPV (Rs.) = 1907.58 or 1908

3} Final Compensation (NPV+BV) = Rs. 1908+774

=Rs. 2682per tree (according to the existing formula)

***Note:-** *The values in this example has been taken for all production stage on an average annual income & cost of maintenance/ cultivation for one tree from the existing table(page No. 10-11). However, the values could be taken as increasing, constant, and decreasing from four production stages, depending upon the stage of production of that particular fruit trees at the time of evaluation.*

The final compensation shall be calculated according to the whole sale price index/composite index as under:-

e.g. During the year 2000-01, when the composite index was 85.5, the final compensation was provided @ Rs. 2682/- per tree as stated above and Similarly, the composite index during the year 2015-16 is 201.30

Therefore, the final compensation as per present Composite Index should be

= Rs. 2682X 2.354 (i.e. 201.30/85.5=2.354)

Final Compensation value =Rs.6314/- per tree

It is further informed that similar exercise shall also be undertaken for all **kind of fruit trees included in the existing norms** while formulating the evaluation as per evaluation criteria of fruit trees in H.P. In future also, the exercise shall be carried out on the basis of whole sale price index (Composite index) value **annually/every year** after obtaining the value of same from the Economic Advisor to the Government of Himachal Pradesh and accordingly the compensation values shall be derived every year for better compensating the losses caused to the farmers in the event of acquisition of their land/fruit trees by the Government or any other agencies in the State for developmental purposes.

You are therefore, directed to implement the existing compensation formula ***"Evaluation Criteria of Fruit Trees in Himachal Pradesh"*** for better compensation to the affected farmers/ Orchardists of the State on the basis of **present price index.**

Encls – 14 Nos

(Dr. H.S Baweja)
Director of Horticulture,
Himachal Pradesh, Shimla-2
0177-2842390(Off)
E-mail id. ***horticul-hp@nic.in***
Dated: Shimla-2, Mar., 2017.

-8 MAR 2017

Endst. No As above
Copy of the above forwarded to

1. The Principal Secretary (Hort.) to the Government of Himachal Pradesh w.r.t letter referred above for favour of information please.
2. The Economic Advisor, Department of Economics & Statistics, Block No.38, SDA Complex, Kasumptti ,Himachal Pradesh, Shimla-171009, w.r.t their letter referred above with the request to send the composite index for 2016-17 also and requested that the same may be sent during subsequent years in the beginning of the financial year if possible to this Directorate, in the benefit of the farming community please.
3. The Professor & Head, Department of Social Sciences, College of Forestry, Dr. Y.S Parmar University of Horticulture & Forestry, Nauni, Solan Himachal Pradesh for favour of information.
4. The Professor & Head, Department of Fruit Science, College of Horticulture, Dr. Y.S Parmar University of Horticulture & Forestry, Nauni, Solan Himachal Pradesh with the request to supply the information w.r.t average bearing age of **apple spur type fruit trees raised on clonal root stocks**, as the same is having different bearing age and habit of growth and also requested to send the average bearing age of other kind of fruit crops left out/ have not been included in the existing Evaluation Criteria of Fruit Trees in H.P. in the benefit of farming community in the State at large please.
5. The Officer In-charge, Agro-Economic Research Centre, H.P. University, Shimla171005 for favour of information.
6. The Joint Director Horticulture, Directorate of Horticulture, Himachal Pradesh for information.
7. Horticulture Economist, Directorate of Horticulture, Himachal Pradesh for information.

(Dr. H.S Baweja)
Directorate of Horticulture,
Himachal Pradesh, Shimla-2

No. HTC-G(11)-1/2016
Government of Himachal Pradesh
Department of Horticulture

From

Principal Secretary (Hort.) to the
Government of Himachal Pradesh.

To

The Director of Horticulture
Himachal Pradesh, Shimla-2.

Dated: Shimla-2, the 1/3/2017

Subject: Revision of norms of "Evaluation Criteria of Fruit Trees in Himachal Pradesh"

Sir,

I am directed to refer to your letter No. 29-51/2016 (EFP)-Udyan-IV- dated 19th January, 2017 on the subject cited above and to accord approval for the implementation of the existing compensation formula "Evaluation Criteria of Fruit Trees in Himachal Pradesh" for better compensation of the affected farmers /Orchardists of the State on the basis of presence price index.

Yours faithfully,

(R. R. Patyal)
Joint Secretary (Hort.) to the
Government of Himachal Pradesh
Ph. No.: 0177-2622765

DDnCP-FP
DHP
8/3/17

Dr. B.S. Negi
Ramesh 3.03.2017

ANNEXURE-I (2)

(20)

No.HTC-C(9)-1/97
Government of Himachal Pradesh
Department of Horticulture.

From

F.C.-cum-Secretary(Horticulture) to the
Government of Himachal Pradesh, Shimla-2.

To

The Director of Horticulture,
Himachal Pradesh, Shimla-171002.

Dated:Shimla-2, the 16 th July, 2001.

Subject: Evaluation criteria for fruit trees for the purposes of land acquisition.

Sir,

I am directed to refer to your letter No.29-51/97-Udyan-IV, dated 2nd March, 2001 on the subject cited above and to convey the approval of the Government of Himachal Pradesh for implementation of "Dynamic and Scientific Formula" for the evaluation of 34 different kinds of fruit trees under land acquisition as contained in the annexure-'A' enclosed.

You are, therefore, requested to take further necessary action to implement the above mentioned decision of the Government and send the implementation report to this Department within 10 days.

Yours faithfully,

Special Secretary(Hort.) to the
Government of Himachal Pradesh.

Endst. No. As above, Dated:Shimla-2, the 16 -7-2001.

Copy for information and necessary action to :-

1. Additional Secretary(GAD-D) to the Govt. of H.P. Shimla-2
2. Additional Secretary (Fin) to the Govt. of H.P. Shimla-2
3. The Director of Information & Public Relation, H.P. Shimla-2 for wide publicatyn.
4. Guard file.

Special Secretary(Hort.) to the
Government of Himachal Pradesh

(3)

EVALUATION CRITERIA OF FRUIT TREES

IN

HIMACHAL PRADESH

DEPARTMENT OF HORTICULTURE,
HIMACHAL PRADESH, SHIMLA–2

Price Rs. 15/-

EVALUATION OF FRUIT TREES IN HIMACHAL PRADESH

INTRODUCTION

The matter regarding the evaluation of horticulture trees for the purpose of acquisition or other wise has been a matter of discussion in many quarters. The existing procedure of evaluation results in lower value of compensation leading to discontentment among horticulturists, whose orchards have been acquired by government for development purposes. The problem was realized by the government and a committee was constituted to look into the matter and provide remedial measures in the form of some appropriate formula and with realistic estimate of fruit yields, costs and returns. It was also envisaged to make the formula for calculating the present worth of fruit trees dynamic so that it may solve the problems in future as well.

NEED FOR REVISION OF EARLIER FORMULA

The **"Harbans Singh's"** formula currently in use for calculating the value of orchards or individual fruit tree, was jointly prepared by Deputy Director of Horticulture, Himachal Pradesh and Deputy Director Horticulture (Plains) Punjab in the sixties and was approved by the Director of Agriculture, Himachal Pradesh and Director of Agriculture, Punjab for adoption for the assessment of fruit trees in these respective States. This formula assumes a constant income from the fruit tree throughout its bearing life. Actually, the fruit tree start from low productivity in terms of fruit production and the production increases with the passage of time till it starts declining. This formula is not based on the calculation on any field survey and studies. These estimates generated four decades ago have lost their relevance in the present context and have become obsolete with the passage of time. There was a need to update these estimates of costs and returns for different age groups of various fruits. Secondly, a suitable method was to be developed which could generate present value of future incomes likely to be realized from orchards, which could form basis for adequately compensating the orchardists. Thus a revision of the old formula became necessary.

METHOD AND MATERIAL

The data regarding initial cost of establishment, pre-bearing maintenance cost, maintenance cost in bearing stages, average annual income, average annual expenditure of 34 fruit crops has been prepared in the shape of schedules for individual fruits in accordance with the actual package and practices recommended by the scientists of Dr. Y. S. Parmar, University of Horticulture & Forestry, Nauni (Solan) and experience of field officers of the Department of Horticulture as under :–

(a) **Data on costs :**

Package of Practices approved by the Dr. Y.S. Parmar, University of Horticulture & Forestry, Nauni (Solan) and the experience of the field officers of Department of Horticulture.

(b) **Farm gate price :**

The farm gate prices are calculated by using the whole sale prices of some fruits prevailing in the market and taking in to account the marketing cost borne by the growers. The data on marketing costs have been obtained from the sources of Agro Economic Research Centre, H. P. University, Shimla and data available with the Department of Horticulture. The Department has also collected the information on farm gate prices of some fruits for which market prices were not available.

(c) The information relating to Yield per plant, Planting distance, Bearing Age and Bearing life of different fruits are based on the discussion between Scientists of Dr. Y. S. Parmar, University of Horticulture & Forestry, Nauni (Solan), Agro Economic Research Centre, H. P. University, Shimla and officers of Department of Horticulture Himachal Pradesh.

EVALUATION PROCEDURE

The fruit trees being perennial in nature and having long gestation period, can be divided into two categories *viz.* "non bearing" and "fruit bearing" trees. This categorization is important for tree

valuation as well. In the first stage only expenditure has been incurred whereas in other returns are also realized. Due to this fact the evaluation procedure has to be different for each category and have, therefore, been taken up separately.

(a) NON BEARING STAGE

The length of this stage differs from fruit to fruit. The costs incurred during this stage can be categorized into *(i)* non-recurring or initial cost of plantation, and *(ii)* recurring cost or maintenance cost of trees.

1. **Non-recurring cost.**— Includes the costs incurred in all the preliminary operations involved in planting. This takes into account cost of labour for preparation of site including land development and lay out, digging and filling of pits, cost of materials like farms yard manure (FYM), fertilizer, insecticides & pesticides, plant material, irrigation, actual planting and staking. Any transportation charges for these activities/materials also included in total non-recurring cost.

2. **Recurring cost.**— Includes costs incurred on hoeing, weeding, manuring/fertilizing, irrigation, mulching, training, pruning, basin making, plant protection, any treatment for improvement of yield and fruit quality, watch and ward, land rent, interest on accumulated establishment cost etc. required to maintain the orchard in good shape and quality.

After incorporating the above costs the following formula will determine the value of tree at the time of evaluation.

$$\text{Value of tree during pre-bearing stage (Basic Value)} = \text{Value of non recurring expenditure on initial cost of plantation} + \left\{ \text{Age of the tree} \times \text{Average annual recurring expenditure during pre-bearing period.} \right\}$$

The illustration pertaining to use of formula has been presented in Annexure-III. (Problem-I).

(b) FRUIT BEARING STAGE

The evaluation of fruit bearing tree becomes more complex as many more factors come to play their role. The evaluation of fruit bearing tree can be broken down into two parts, *viz.* basic value of tree, which is a result of culmination of expenditure during non-bearing stage and the value for remaining years for which the tree has been bearing fruits. The cost involved in case of fruit bearing tree would include the non-recurring cost and the recurring cost as mentioned in case of non-bearing trees. But in this case the recurring cost would also include management and supervision. The value of fuel wood of the tree will not form the part of value of the compensation as this is a result of tree growth during pre-bearing and fruit bearing stages for which a provision of adequate compensation has been created. Hence, there is no rationale in giving compensation for fuel wood. However trees having timber value also shall be evaluated by the Forest Department for payment of compensation.

The details of valuation of a bearing tree is as follows :

The basic value of the fruit tree is to be calculated by using following formula.

$$\text{Basic value of tree} = \text{Non recurring expenditure} + \left\{ \text{Length of pre-bearing period} \times \text{Average annual recurring expenditure incurred during pre-bearing period.} \right\}$$

The basic value of a tree can be defined as the total expenditure that has to be incurred on a particular tree during its whole pre-bearing age. The basic value of different fruit trees have already been calculated and presented in Annexure-I, Col-10.

So far the task has been comparatively simpler. The evaluation procedure becomes complicated as soon as the tree enters bearing stage. Number of factors now enter the calculation process. These have been elicited below :–

(c) REMAINING YEARS IN BEARING PERIOD

This is an important factor determining the value of compensation. By acquisition of tree the owner is deprived of income for remaining years of economic life for which he has to be compensated. Thus, next step after determining the basic value would be to find out remaining number of economic bearing life of fruit tree. This is determined by the following formula.

$$\text{Remaining bearing life} = \left\{ \begin{array}{l} \text{Average} \\ \text{length of} \\ \text{bearing age} \end{array} \right. \quad — \quad \left. \begin{array}{l} \text{Age of tree} \\ \text{at the time} \\ \text{of evaluation.} \end{array} \right\}$$

The length of pre-bearing period and average economic bearing period for various fruits under consideration have been presented in Annexrue-I, Col. 7 & 11 respectively. The illustration pertaining to the use of formula has been presented in Annexrue-III. (Problem-2)

In order to quantify the amount of compensation for acquisition of fruit tree two more concepts need classification.

VALUES OF AVERAGE ANNUAL INCOME AND EXPENDITURE

For the calculation of Net Present Value (NPV) of likely earnings for remaining bearing life weighted average of annual income and expenditure of all bearing age has been taken into account. Average annual income has been calculated by multiplying the average yield with the farm gate price of the fruit.

DISCOUNTING RATE

After careful consideration it was found appropriate to adopt and recommend 10% as the discounting rate for calculating the present value of money. This is in consonance with the current interest rate on long term deposits and will also give some advantage to the tree owners. The average discount rate (10 percent per annum) for different years has been presented in Annexure-II for ready reference.

The fruit trees have also been categorized into four stages based on the trend in yields, which in turn depends upon the age of the tree. The first stage is that of pre-bearing age when no fruit are born. Next, when the tree comes into bearing age, the fruit yield goes on increasing year after year for some years. This stage has been termed as stage of increasing yields. Thereafter, the yield stabilizes for some period and has been referred as plateau production period or stage of constant fruit yields. Finally, the fruit yield starts falling and keeps on getting lower and lower every year till the economic bearing stage is finished. This is stage @ of declining yields. Due to different trends in productivities in different age group of trees, the returns are at variance among these groups. The average return per year for each such group of fruits under consideration have been worked out and presented and tabulated in Annexrure-I. The average yield has been taken for calculating the Net Present Value. The amount of compensation will depend upon the number of production years left in a particular and subsequent group.

The amount thus, worked out for future crops needs to be discounted so as to find out its present value. For this, the average discount factor @ 10% per annum has been used as elaborated above. Hence, the present value of future income, likely to be earned will be:-

$$\text{Net Present Value (NPV) of likely earning for remaining bearing life} = \text{Remaining number of year's in bearing life} \times \left\{ \text{Average annual income} - \text{Average annual expenditure} \right\} \times \text{Average discount factor}$$

The illustration pertaining to use of formula has been presented in Annexure-III, (Problem-2)

FINAL COMPENSATION

The formula showing the final assessment of a fruit tree in bearing stage is as follows :

Value of final compensation for fruit bearing tree = { Basic value of the tree + NPV of likely future earning for remaining bearing life of tree. }

This evaluation is subject to following conditions :

1. Those trees which have already completed the economic bearing period will have to be evaluated only for fuel (or timber, if any) wood, and this work relates to the Forest Department.

2. The present tree evaluation is entirely independent of the evaluation of various other structures such as land, fence, farm house, wells other irrigation structures, etc. These structures need to be evaluated by the Revenue or Public Works Department authorities.

3. Crops like vegetables, commercial flowers, spices and commercial medicinal plants should not be considered for evaluation as these crops can very well be harvested before the land acquisition process is over.

4. All other trees which do not have any commercial market value for their produce but for their aesthetic sense should only be considered for timber/fire wood which should be got evaluated by the Forest Department authorities.

Annexure-I

Basic Values of Fruit Trees in Himachal Pradesh

Sl. No.	Name of fruit	Minimum Permissible planting distance		Maximum permissible number of plants		Length of pre-bearing period (Yrs.)	Initial cost of plantation or non-recurring expenditure	Average annual maintenance or recurring expenditure during pre-bearing period	Basic Value of a tree	*Average bearing age of tree (Yrs.)
		Feet	Meter	Acre	Hectare	Years	Rupees	Rupees	Rupees	Years
1	2	3	4	5	6	7	8	9	10	11
1	Almond (Dry)	12	3.66	250	625	4	38	90.84	401	30
2	Apple (standard)	18	5.49	134	335	6	39	122.46	774	45
3	Apricot	18	5.49	134	335	5	38	99.44	535	30
4	Anola	25	7.62	70	175	6	39.5	82.76	536	45
5	Ber	20	6.1	110	275	4	30.5	60.51	273	45
6	Cherry	20	6.1	110	275	6	46	105.56	679	40
7	Fig	20	6.1	110	275	5	31.5	48.26	273	20
8	Galgal	18	5.49	134	335	4	22.5	68.49	296	30
9	Grape Fruit	20	6.1	110	275	5	38.5	67.00	374	25
10	Grapes	8	2.49	435	1088	2	41	67.00	175	40
11	Guava	20	6.1	110	275	4	38.5	69.74	317	30
12	Jack Fruit	35	10.67	35	88	9	28.5	48.53	465	50

Cont.

Annexure-I Cont.

1	2	3	4	5	6	7	8	9	10	11
13	Jammun	35	10.67	35	88	9	25	69.24	648	60
14	Kagzi Lime	15	4.57	194	485	4	34.5	65.07	295	30
15	Kiwi Fruit	10	3	436	1090	3	45	76.91	276	20
16	Lemon	15	4.57	194	485	4	38.5	65.80	302	20
17	Litchi	25	7.62	70	175	6	48	108.16	697	50
18	Loquat	20	6.1	110	275	6	31.5	70.55	455	40
19	Malta(Sweet Orange)	18	5.49	134	335	5	37.5	100.84	542	25
20	Mango (Grafted)	20	6.1	110	275	6	45	112.86	722	50
21	Mango (Seedling)	35	10.67	35	88	9	23	61.64	578	60
22	Olive	20	6.1	110	275	4	36	77.31	345	60
23	Peach	15	4.57	160	400	4	38	84.85	377	20
24	Pear (Gritty)	18	5.49	134	335	6	31	68.51	442	50
25	Pear (Soft)	18	5.49	134	335	7	41	86.40	646	45
26	Pecannut	25	7.62	70	175	11	38	52.62	617	50
27	Persimon	18	5.49	134	335	5	31	69.17	377	35
28	Plum	18	5.49	134	335	4	37	86.04	381	25
29	Pomegranate	15	4.57	194	485	4	31	69.18	308	30
30	Pumelo	18	5.49	134	335	4	37.5	70.23	318	25
31	Sangtra	18	5.49	134	335	5	37.5	100.84	542	25
32	Sweet Lime	18	5.49	134	335	4	35	71.00	319	20
33	Walnut (Grafted)	25	7.62	70	175	7	38	102.62	756	60
34	Walnut(Seedling)	35	10.67	35	88	14	30	100.65	1439	100

Cont.

Annexure-I

Sr.No.	Name of fruit	Average annual cost of maintenance/cultivation for one tree of the following production stages (Rs.)				Average production per tree of the following production stages (Kgs.)				Farm Gate price	Average annual Income obtained from one tree of the following production stages (Rs.)			
		Increasing production	Constant Production	Decreasing Production	All Production	Increasing production	Constant Production	Decreasing Production	All Production	Rs. per Kg.	Increasing production	Constant Production	Decreasing Production	All Production
1	2	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Almond	169	207	224	206	1	3	2	2	150	180	450	285	335
2	Apple(standerd)	248	327	347	318	35	80	40	55	9	325	742	371	514
3	Apricot	181	216	225	213	16	50	35	37	7	115	360	252	266
4	Anola	113	137	144	136	30	120	60	83	6	180	720	360	498
5	Ber	80	101	114	102	25	100	50	69	5	125	500	250	345
6	Cherry	176	210	230	208	10	25	20	20	34	340	851	681	681
7	Fig	87	91	100	93	10	15	12	13	9	90	135	108	119
8	Galgal	71	82	82	80	30	60	50	49	3	78	156	130	123
9	Grape Fruit	141	153	176	157	25	50	35	39	5	125	250	175	194
10	Grapes	107	140	150	139	7	20	10	16	10	70	200	100	160
11	Guava	124	171	183	168	30	55	40	49	6	180	330	240	294
12	Jack Fruit	68	72	75	72	42	100	67	85	6	252	600	402	509
13	Jammun	62	68	71	68	18	50	32	43	10	180	500	320	433
14	Kagzi Lime	111	134	135	130	15	30	22	24	7	105	210	154	168
15	Kiwi Fruit	151	173	178	170	25	80	45	59	10	250	800	450	594
16	Lemon	138	154	156	152	15	40	25	31	6	90	240	150	184
17	Litchi	208	264	281	260	24	80	51	63	10	240	800	510	632
18	Loquat	101	117	120	114	13	40	24	29	6	78	240	144	174
19	Malta(Sweet Orange)	200	226	229	220	18	60	30	42	7	126	420	210	294
20	Mango (Grafted)	195	259	278	251	30	60	40	50	8	251	501	334	418
21	Mango (Seedling)	58	67	76	67	40	120	80	100	3	136	408	272	339
22	Olive	105	145	153	139	10	25	15	19	10	100	250	150	193
23	Peach	185	208	211	200	25	50	35	37	7	188	335	235	247
24	Pear (Gritty)	84	98	98	95	60	100	80	84	2	90	150	120	125
25	Pear (Soft)	158	197	208	194	25	50	35	39	7	176	351	246	277
26	Pecannut	116	136	154	137	13	35	24	29	25	325	875	600	720
27	Persimon	103	122	131	121	20	60	40	51	6	120	360	240	306
28	Plum	154	175	178	170	25	50	40	40	8	138	275	220	223
29	Pomegranate	117	125	132	125	10	15	12	13	12	120	180	144	157
30	Pumelo	143	157	159	154	16	50	34	38	5	80	250	170	190
31	Sangtra	200	228	229	220	25	50	40	41	7	175	350	280	269
32	Sweet Lime	170	187	187	182	18	50	25	39	6	108	300	150	232
33	walnut (Grafted)	113	136	154	138	15	40	30	31	30	450	1200	900	917
34	Walnut(Seedling)	85	97	107	103	25	55	50	50	10	250	550	500	498

Note : Average bearing age of tree "indicates age of the plant upto which it will give economic yield.

ANNEXURE–II

DISCOUNT FACTOR@ 10% PER ANNUM FOR DIFFERENT YEARS AND AVERAGE DISCOUNT FACTOR

Year	Discount Factor	Year	Discount Factor	Year	Average Discount Factor	Year	Average Discount Factor
1	2	3	4	5	6	7	8
1	0.90909	26	0.08391	1	0.90909	26	0.35234
2	0.82645	27	0.07628	2	0.86777	27	0.34212
3	0.75132	28	0.06934	3	0.82895	28	0.33238
4	0.68301	29	0.06304	4	0.79247	29	0.32309
5	0.62092	30	0.05731	5	0.75816	30	0.31423
6	0.56447	31	0.05210	6	0.72588	31	0.30577
7	0.51316	32	0.04736	7*	0.69549	32	0.29770
8	0.46651	33	0.04306	8	0.66687	33	0.28998
9	0.42410	34	0.03914	9	0.63989	34	0.28261
10	0.38554	35	0.03558	10	0.61446	35	0.27555
11	0.35049	36	0.03235	11	0.59046	36	0.26879
12	0.31863	37	0.02941	12	0.56781	37	0.26232
13	0.28966	38	0.02674	13	0.54641	38	0.25612
14	0.26333	39	0.02430	14	0.52619	39	0.25018
15	0.23939	40	0.02210	15	0.50707	40	0.24448

Cont.

* max. Benefit at 7yrs. 00

Annexure–II Cont.

1	2	3	4	5	6	7	8
16	0.21763	41	0.02009	16	0.48898	41	0.23900
17	0.19785	42	0.01826	17	0.47186	42	0.23375
18	0.17986	43	0.01660	18	0.45563	43	0.22870
19	0.16351	44	0.01509	19	0.44026	44	0.22384
20	0.14864	45	0.01372	20	0.42568	45	0.21917
21	0.13513	46	0.01247	21	0.41184	46	0.21468
22	0.12285	47	0.01134	22	0.39871	47	0.21035
23	0.11168	48	0.01031	23	0.38623	48	0.20619
24	0.10153	49	0.00937	24	0.37436	49	0.20217
25	0.09230	50	0.00852	25	0.36308	50	0.19830

ANNEXRURE-III

EXAMPLES OF TREE EVALUATION

Problem No. 1 : Evaluation of a 5 years old Mango (grafted tree for the purpose of compensation.

Solution : The pre-bearing period for the mango (grafted) tree is 6 years and hence the said tree falls in the pre-bearing stage. Therefore the following formula will be used for Evaluation of above age of tree.

Value of compensation = Value of non recurring expenditure on initial cost of plantation + { Age of tree × Average annual recurring expenditure during the pre-bearing period }

By referring the basic value given in Annexure 1, the compensation will be as follows :

Compensation : 45 + (5x112.86) = Rs. 609.30 P.

Therefore the value of compensation for the said 5 years old mango (grafted) tree will be Rs. 609.30 p

Problem No. 2 : Evaluation of 12 year age of Pear tree.

Solution : The length of pre-bearing period is 7 years and hence, the above mentioned tree falls in increasing production stage of bearing plants

(a) The basic value of the pear tree is Rs. 646/- (Annexure-I)

(b) The compensation for the remaining number of years in the economic bearing period will be as follows :-

Remaining bearing life = Average bearing age — Age of the tree at the time of evaluation.

Refer to basic values given in Annexure— 1 by putting values in the above formula the remaining bearing life will be = 45–12=33 years.

(c) Net present Value of likely earnings for remaining bearing life. = Remaining Nos. of bearing life × { Average annual income — Average annual expenditure } × Average discount factor.

Refer to basic value in Annexrue–1 putting values in the formula, the NPV of remaining bearing life will be.

$= 33 \times (277\text{-}194) \times 0.28998 = \text{Rs. } 794/-$

(d) Final compensation :

Value of final compensation = { Basic value of the tree + NPV of likely future earnings for remaining bearing age of tree }

By putting the values calculated above, the value of final compensation will be :--

a + c = Rs. 646 + 794 = 1440/-

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