

ANNUAL REPORT (2015-16)

ALL INDIA CO-ORDINATED RESEARCH PROJECT ON FLORICULTURE SHILLONG CENTRE



**DIVISION OF HORTICULTURE
ICAR RESEARCH COMPLEX FOR NEH REGION,
UMROI ROAD, UMIAM 793103 (MEGHALAYA)**

1. Background information

ICAR Research Complex for NEH Region, Umiam is situated at 950 m MSL (Farm at 1010 m) and at 26 N latitude and 92 E longitudes. Mean maximum temperature at Umiam varied from 19.9 °C in the month of January to 28.64 °C in the month of July during the 2015–16. The soil is sandy loam alfisol with pH 5.6, organic carbon 1.8, exchangeable potassium 69.3 mg/kg and phosphorus 3.5 mg/kg. This centre was included under AICRP on floriculture in 1975 as an Institutional centre. The major objective of the centre is collection, evaluation and improvement of germplasm, resources available in the region and simultaneously from the other part of the country available through coordinated project.

Centre	ICAR Research Complex for NEH Region, Umiam, Meghalaya– 793103
Period of report	2015-2016
Location	Umiam (Barapani), Meghalaya

2. Staff position

S.No.		Scientific persons
i	Name	Dr. Heiplanmi Rymbai
ii	Address	Scientist (Fruit Science) Division of Horticulture Email ID: rymbaihort@gmail.com Mob. No.: +91-8131076434
iii	Research Project associated	<i>Institute Project:</i> 1) To study soil-plant nutrients relationship responsible for Khasi mandarin decline at varying altitudes and its management (<i>PI</i>) 2) Productivity maximization and quality improvement of guava and peach (<i>Co-PI</i>) 3) Studies on physico-chemical properties and value addition of underutilized cucurbits (<i>Co-PI</i>) 4) Regional trial on advance breeding lines of horticultural crops (<i>Co-PI</i>) <i>Externally funded projects:</i> 1) Development of National Database on Mango sponsored by Dept. of Biotechnology, Govt. of India (<i>PI</i>) 2) Harvesting, processing and value addition of natural resin and gums, ICAR Network Project (<i>Co-PI</i>) 3) ICAR-All India Co-ordinated Research Project- Floriculture (<i>Co-PI</i>) 4) Collection, taxonomy, molecular characterization and conservation of Musa Germplasm from North -eastern Region (NER) of India sponsored by Dept. of Biotechnology, Govt. of India (<i>Co-PI</i>).

3. Budget details during 2015-2016		Amount (Rs.)
i	Opening balance	21,092
	Receipts	100,000
	Expenditure	56,746

4. Salient Achievements 2014-15

Identification of four promising new hybrids of gerbera, viz., RCGH-12, 22, 114, 117 developed by the Horticulture Division, ICAR Research Complex for NEH Region, Umiam suitable for mid-hill location of Meghalaya under open conditions (Table 4 and Table 5).

Two species of orchid, *Phaius tankervilleae* and *Phaius woodfordie* were collected from Meghalaya (Passport data) and planted in pots under 75% shade net. Characterization were also carried out (Table 3)

5. Experiment wise results:

Project No. 1.5.1: Collection, characterization, evaluation and maintenance of Orchid germplasm

A total of thirty three orchid species were collected, evaluation and characterization were carried out for vegetative and flowering characters.. Plants are in vegetative stages and 14 species have started flowering (Table 1, 2 & 3). Two orchid species, viz., *Phaius tankervilleae* and *Phaius woodfordie* were collected, evaluated and maintenance. Regarding vegetative characters, plant height ranges from 11.2cm (*Paphiopedillum fairrieanum*) to 108.1cm (*Cymbidium eburneum*) and plant spread was recorded maximum in *Cymbidium mastersii* (75.5 cm). Pseudobulb length was recorded maximum in *Coelogyne corymbosa* (14.27cm) and maximum pseudobulb length was recorded maximum in *Zygopedillum intermedium* (4.53 cm). Maximum number of leaves was observed in *Coelogyne flaccid* (95 leaves/plant). *Dendrobium crysotatum* showed the maximum leaf length (112.03 cm) and leaf width (15.60 cm). All the 33 varieties produce only one vegetative shoot/pseudobulb and one inflorescence/pseudobulb. Flowering time ranges from November to May. Flowering duration ranges from 7 days (*Dendrobium crysotatum* and *Dendrobiumdensiform*) to 90.67 days (*Paphiopedillum villosum*). Maximum flowering duration is observed in *Paphiopedillum villosum* (90.67 days).

Table 1. Vegetative characteristics of different orchid species

Varieties	Plant height (cm)	Plant spread (cm)	Pseudobulb length (cm)	Pseudobulb width (cm)	Leaf number	Leaf length (cm)	Leaf width (cm)	Vegetative shoot/pseudobulb
<i>Aerides multiflorum</i>	31.5	21.5	-	-	5.0	26.0	2.7	1.0
<i>Aerides odoratum</i>	25.0	-	-	-	8.0	19.0	2.2	1.0
<i>Bulbophyllum sp.</i>	18.7	57.5	4.4	1.8	3.0	14.0	2.0	1.0
<i>Coelogyne corymbosa</i>	66.1	64.5	14.3	3.2	13.0	43.7	7.7	1.0
<i>Coelogyne barbata</i>	38.6	46.8	11.3	2.5	14.0	26.2	3.3	1.0
<i>Coelogyne flaccida</i>	44.0	56.8	5.6	2.4	95.0	27.1	1.1	1.0
<i>Coelogyne nitida</i>	31.2	35.5	-	-	5.0	20.1	3.2	1.0
<i>Cymbidium aloifolium</i>	33.9	36.5	-	-	7.0	25.4	2.6	1.0
<i>Cymbidium eburneum</i>	108.1	56.7	-	-	15.3	97.9	1.9	1.0
<i>Cymbidium elegans</i>	64.2	37.0	-	-	13.7	53.6	1.6	1.0
<i>Cymbidium hybrids</i>	86.6	60.8	-	-	12.0	81.5	1.9	1.0
<i>Cymbidium mastersii</i>	90.7	75.5	-	-	25.0	82.3	2.0	1.0
<i>Cymbidium traceyanum</i>	89.0	44.2	-	-	15.7	82.6	2.4	1.0
<i>Dendrobium chrysanthum</i>	61.1	66.5	-	-	11.0	10.5	2.6	1.0
<i>Dendrobium crysotanum</i>	82.6	26.5	-	-	16.7	10.6	2.8	1.0
<i>Dendrobium densiflorum</i>	33.7	44.2	-	-	11.3	13.1	3.8	1.0
<i>Dendrobium nobile</i>	26.2	26.5	-	-	10.3	10.2	2.1	1.0
<i>Dendrobium wardianum</i>	45.8	39.5	-	-	15.0	13.0	2.3	1.0
<i>Paphiopedilum fairrieanum</i>	11.2	42.7	-	-	24.0	10.0	4.1	1.0
<i>Paphiopedilum hirsutissimum</i>	29.3	46.5	-	-	15.7	27.3	2.2	1.0
<i>Paphiopedilum insigne</i>	31.8	31.2	-	-	22.0	27.8	2.5	1.0
<i>Paphiopedilum spicarianum</i>	35.0	52.3	-	-	24.7	30.9	3.8	1.0

<i>Paphiopedilum venustum</i>	19.3	19.8	-	-	9.0	15.5	4.2	1.0
<i>Paphiopedilum villosum</i>	45.7	55.5	-	-	37.3	42.5	4.1	1.0
<i>Pholidota articulata</i>	45.9	27.0	-	-	2.0	14.7	3.2	1.0
<i>Pleione praeox</i>	82.2	51.0	-	-	11.0	79.5	2.5	1.0
<i>Rhynchostylis retusa</i>	27.8	22.5	-	-	7.0	17.9	3.4	1.0
<i>Thunia marshalliana</i>	97.3	42.7	-	-	27.5	23.5	3.6	1.0
<i>Vanda parasii</i>	18.4	16.0	-	-	2.0	15.7	5.8	1.0
<i>Vanda stangeana</i>	32.2	42.0	-	-	6.0	12.3	2.1	1.0
<i>Zygopetalum intermedium</i>	61.2	37.5	6.4	4.5	22.5	55.6	3.8	1.0

Table 1. Flowering characteristics of different orchid species

Varieties	No. of inflorescence/pseudobulb	Flowering time	Flowering duration (day)	No. of flower spikes/pseudobulb	No. of flowers/spike	Inflorescence diameter (cm)	Inflorescence length (cm)	Stalk length (cm)	Raceme length (cm)	No. of bracts	Flower diameter (cm)
<i>Aerides multiflorum</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Aerides odoratum</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Bulbophyllum sp.</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Coelogyne corymbosa</i>	1.0	Nov-Dec	18.0	5.50	16.00	-	-	19.75	-	-	3.77
<i>Coelogyne barbata</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Coelogyne flaccida</i>	1.0	Feb-March	30.6	6.00	3.80	-	-	7.17	-	-	3.00
<i>Coelogyne nitida</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Cymbidium aloifolium</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Cymbidium eburneum</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Cymbidium elegans</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Cymbidium hybrids</i>	1.0	Nov-May	62.2	1.33	6.25	-	-	46.67	-	-	6.17
<i>Cymbidium mastersii</i>	1.0	Nov-Dec	26.0	1.67	8.40	-	-	31.00	-	-	5.67
<i>Cymbidium traceyanum</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Dendrobium chrysanthum</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Dendrobium crysotatum</i>	1.0	April	7.0	1.00	7.33	15.23	3.27	34.00	5.30	1.00	4.13
<i>Dendrobium densiflorum</i>	1.0	April	7.0	1.00	1.00	23.13	2.60	33.00	4.33	1.00	2.67
<i>Dendrobium nobile</i>	1.0	April	8.0	1.00	3.00	23.93	4.73	17.73	4.47	1.00	5.57

<i>Dendrobium wardianum</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Paphiopedilum fairrieianum</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Paphiopedilum hirsutissimum</i>	1.0	March-April	43.0	1.00	1.00	6.73	6.65	34.25	9.73	1.00	6.75
<i>Paphiopedilum insigne</i>	1.0	Nov-Jan	68.8	2.33	1.00	-	-	23.50	-	-	8.60
<i>Paphiopedilum spicarianum</i>	1.0	Nov-Dec	45.2	3.33	1.00	-	-	40.50	-	-	7.20
<i>Paphiopedilum venustum</i>	1.0	Jan-March	56.5	2.00	1.00	-	-	14.00	-	-	7.83
<i>Paphiopedilum villosum</i>	1.0	Nov-Feb	90.7	4.33	1.00	-	-	25.00	-	-	9.53
<i>Pholidota articulata</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Pleione praeox</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Rhynchostylis retusa</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Thunia marshalliana</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Vanda parasii</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Vanda stangeana</i>	1.0	-	-	-	-	-	-	-	-	-	-
<i>Zygopetallum intermedium</i>	1.0	-	-	-	-	-	-	-	-	-	-

-, data not available

Table 3: Characteristics of two new orchid species collected (*Phaius tankervilleae* and *Phaius woodfordie*)

Characters	<i>Phaius tankervilleae</i>	<i>Phaius woodfordie</i>
Plant height (cm)	148.2	111.2
Plant spread (cm)	107.2	80.2
Pseudobulb length (cm)	5	4.3
Pseudobulb width (cm)	3.7	3.5
Leaf number	4	7
Leaf length (cm)	112	71
Leaf width (cm)	15.6	15.1
Sheath length (cm)	3.5	-
Vegetative shoot/pseudobulb	1	1
No. of inflorescence/pseudobulb	1	1
Flowering time	April	April-May
Flowering duration (days)	7	7.33
No. of flower spikes/pseudobulb	1	1
No. of flowers/spike	14.67	12.67
Inflorescence diameter (cm)	23.8	17.77
Inflorescence length (cm)	5.43	19.33
Stalk length (cm)	89.5	60.3
Raceme length (cm)	11.07	10.17
No. of bracts	1	1
Flower size diameter (cm)	9.83	10.37
Petal to Petal distance (cm)	3.33	7.07
Lip length (cm)	4.13	4.33
Lip lobe distance (cm)	0.73	2.57
Column length (cm)	2.27	2
Column width (cm)	0.73	0.57
Petal length (cm)	5.23	6
Petal width (cm)	1.57	1.5
Pedicellate ovary length (cm)	0.43	0.3
Pedicellate ovary diameter (cm)	0.4	0.3

**Project No. 1.8.1: Collection, evaluation and maintenance of gerbera germplasm.
Evaluation of Gerbera germplasm under open condition**

About 36 genotypes of gerbera flowers were evaluated for vegetative and flowering characters under open condition (table 1 and 2). Among these genotypes RCGH 3 showed the highest number of leaves per plant (90.33) and maximum leaf length (25.90 cm) was observed in RCGH 33 and maximum leaf breadth (9.82) were recorded in Alesmera. Maximum plant spread was recorded in RCGH 33 (45.67 cm²). Maximum number of days taken to bud burst after bud emergence was observed in RCGH 51 (25 days) and maximum number of days taken to first flower opening was recorded in RCGH 51 (32.50 days). Alesmera showed longest flower stalk length (48.58cm) and maximum flower stalk diameter was observed in RCGH 89 (6.35). Maximum flower diameter (11.72cm) was recorded in RCGH 2 and Alesmera showed maximum disc diameter (3.26cm). Number of flowers per plant (29.33) was recorded maximum in RCGH 3. Longest vase life (7.00 days) was recorded in RCGH 12, RCGH 22, RCGH 28, RCGH 114, RCGH 117 and Alesmera.

Table 4: Evaluation of gerbera genotypes for vegetative characters under Open conditions

Genotypes/ Hybrids	No. of leaves/plant	Leaf length (cm)	Leaf breadth (cm)	Plant spread (cm ²)
RCGH 12	17.00	14.22	7.76	33.17
RCGH 22	16.80	14.27	9.28	34.17
RCGH 28	13.40	7.91	6.55	35.00
RCGH 114	17.60	18.17	8.83	36.50
RCGH 117	11.80	13.61	8.27	34.17
Alesmera	11.20	17.74	9.82	38.50
RCGH 1	58.33	18.83	4.63	35.83
RCGH 2	42.67	19.83	4.30	33.67
RCGH 3	90.33	14.43	2.90	30
RCGH 5	62.33	23.17	5.50	28.83
RCGH 7	56.33	23.97	7.10	43.67
RCGH 9	40.67	17.83	5.37	31.67
RCGH 10	31.33	19.07	6.17	34
RCGH 19	45.00	14.93	4.67	31.33
RCGH 20	55.67	15.47	5.10	36
RCGH 23	60.33	19.67	4.83	36.167
RCGH 32	42.00	22.73	6.50	41.5
RCGH 33	40.33	25.90	7.00	45.67
RCGH 38	35.00	15.77	5.43	31.83

RCGH 42	27.00	18.73	5.97	30.67
RCGH 51	20.00	19.17	5.67	34
RCGH 60	26.33	17.33	5.93	26.83
RCGH 76	31.67	18.13	4.30	31.33
RCGH 86	37.67	20.93	7.37	36.83
RCGH 89	18.00	21.13	6.77	37.83
RCGH 90	40.67	20.90	5.63	33.67
RCGH 93	25.00	20.63	5.77	34.33
RCGH 95	28.67	19.47	6.23	32.67
RCGH 97	21.00	19.73	6.80	39.5
RCGH 100	24.67	19.10	7.07	28.83
RCGH 109	33.67	17.43	5.50	27.5
RCGH 113	31.33	19.27	8.10	33
RCGH 128	40.33	18.97	5.90	30.67
RCGH 172	19.67	21.13	6.23	31.17
RCGH 226	33.00	22.47	6.43	38.17
CSA Collection	39.00	18.27	4.37	29.5
CD (0.05)	11.25	1.63	1.02	1.82

Table 5: Evaluation of gerbera genotypes for flowering characters under open conditions

Genotypes/H ybrids	Days to bud burst	Days to first flower opening	Flower stalk length (cm)	Flower stalk dia. (mm)	Flower dia. (cm ²)	Disc dia. (cm ²)	No. of flowers /plant	Vase life (Days)
RCGH 12	20.50	28.50	45.38	4.84	8.80	1.44	19.00	7.00
RCGH 22	14.00	19.50	44.32	5.06	10.86	1.28	20.70	7.00
RCGH 28	13.00	25.00	29.30	4.46	7.94	1.36	18.33	7.00
RCGH 114	15.50	26.00	45.84	5.11	10.88	1.84	20.70	7.00
RCGH 117	15.50	23.00	46.14	5.51	11.32	1.40	21.70	7.00
Alesmera	7.50	19.50	48.58	6.27	10.06	3.26	17.67	7.00
RCGH-1	8.00	14.00	23.92	3.72	9.38	1.02	24.67	3.00
RCGH-2	12.00	18.50	32.96	4.19	11.72	1.34	26.00	3.00
RCGH-3	11.50	14.50	27.86	3.84	10.22	1.26	29.33	3.00
RCGH-5	12.50	23.00	36.92	4.24	9.48	1.32	10.00	3.00
RCGH-7	17.50	30.00	32.33	5.08	11.02	1.70	19.33	3.00
RCGH-9	11.00	19.00	29.40	5.11	11.00	1.67	21.00	5.00
RCGH-10	13.50	21.00	26.07	4.71	10.43	1.30	16.67	5.00
RCGH-19	13.00	16.00	28.30	3.52	10.57	0.73	19.33	5.00
RCGH 20	9.00	14.00	30.03	4.20	10.33	1.07	18.33	5.00
RCGH 23	11.50	17.50	32.53	5.18	10.63	1.33	19.00	3.00
RCGH 32	18.50	26.00	44.00	5.16	10.30	1.17	19.67	5.00
RCGH 33	15.50	22.00	46.67	5.83	10.27	1.40	18.33	5.00

RCGH 38	9.50	17.00	31.17	5.24	10.57	1.53	18.67	3.00
RCGH 42	7.00	15.00	40.50	5.39	9.80	1.77	17.00	5.00
RCGH 51	25.00	32.50	33.60	5.52	10.40	2.23	17.33	5.00
RCGH 60	3.50	9.50	23.20	4.56	10.06	1.54	18.33	5.00
RCGH 76	11.50	16.00	35.50	5.43	12.30	1.33	17.67	5.00
RCGH 86	12.00	21.50	33.83	5.74	10.63	1.80	16.00	5.00
RCGH 89	12.50	22.50	35.67	6.35	11.40	1.47	16.67	5.00
RCGH 90	14.00	23.50	28.00	3.48	8.96	1.06	17.67	3.00
RCGH 93	6.00	16.00	39.70	3.59	9.16	1.24	19.67	5.00
RCGH 95	5.50	15.50	39.86	3.80	11.64	1.42	18.33	5.00
RCGH 97	11.50	20.00	36.80	5.32	10.70	1.80	18.00	3.00
RCGH 100	17.00	22.50	41.60	5.07	10.90	2.47	18.33	3.00
RCGH 109	17.00	25.50	34.23	6.14	10.43	1.43	18.00	3.00
RCGH 113	12.00	21.00	38.60	5.59	8.97	1.50	18.67	5.00
RCGH 128	11.00	25.00	29.67	4.45	7.87	1.30	16.00	5.00
RCGH 172	17.50	29.50	44.10	4.31	10.80	1.10	13.00	5.00
RCGH 226	8.00	15.00	30.10	4.22	9.46	1.28	12.00	5.00
CSA Collection	11.50	15.50	32.30	3.37	8.80	1.53	22.00	2.00
CD (0.05)	2.73	3.05	2.17	0.12	0.32	0.06	0.71	0.04

Evaluation of Gerbera germplasm under low cost polyhouse

Vegetative and floral characters of 15 genotypes genotypes in low cost polyhouse were evaluated. Maximum number of leaves per plant was recorded in RCGH 117 (33.00). Longest leaf length (32.67cm) and leaf breadth (10.87cm) recorded in P.intezz. Plant spread was recorded maximum in RCGH 12 (41.67 cm²). Days to bud burst ranges from 12 days (P.intezz) to 30 days (Rising sun) and days to first flower opening ranges from 20 days (RCGH 114) to 40.67days (Violet). Longest flower stalk length (65.47cm) was recorded in Alesmera and maximum flower stalk diameter (6.96cm) was recorded in Lieke. Maximum flower diameter (11.98cm) was recorded in RCGH 114 and maximum disc diameter (2.57cm) was observed in Alesmera. RCGH 117 produced the highest number of flowers (23.33) per plant. Vase life ranges from 5 to 12 days as shown in table 3 and 4. Reaction to insects/pests was low except in Stanza it was found moderate.

Table 6: Evaluation of gerbera genotypes for vegetative characters under low cost polyhouse

Genotypes/ Hybrids	No. of leaves/plant	Leaf length (cm)	Leaf breadth (cm)	Plant spread (cm ²)
RCGH 12	30.67	18.10	7.21	41.67
RCGH 22	20.33	17.28	7.73	40.33
RCGH 114	24.00	15.86	6.53	34.50
RCGH 117	33.00	18.89	8.83	40.50
Alesmera	17.00	19.25	8.56	35.50
P. intezz	13.33	32.67	10.87	21.83
C.F. orange	12.67	25.03	8.80	27.17
Rich	12.00	21.07	6.90	22.50
Stanza	10.00	20.10	7.50	30.83
Lieke	12.33	30.77	8.47	25.00
Turbin	11.67	27.30	6.40	20.33
C.F. gold	12.67	25.40	7.27	24.17
Rising sun	9.33	23.03	7.47	24.33
Violet	7.00	20.53	5.93	20.50
Lion	14.67	23.27	7.70	23.17
CD (0.05)	1.13	1.27	0.82	3.61

Table 7: Evaluation of gerbera genotypes for flowering characters under low cost polyhouse

Genotypes/H hybrids	Days to bud burst	Days to first flower opening	Flower stalk length (cm)	Flower stalk dia. (mm)	Flower dia. (cm ²)	Disc dia. (cm ²)	No. of flowers /plant	Vase life (Days)
RCGH 12	13.67	22.67	50.92	3.25	7.88	0.98	20.00	5.33
RCGH 22	17.67	24.00	63.80	3.83	10.86	0.92	22.67	4.67
RCGH 114	13.67	20.00	44.00	4.32	11.98	1.23	23.00	6.67
RCGH 117	20.00	26.00	56.42	4.25	10.04	1.10	23.33	7.00
Alesmera	18.00	27.00	65.47	4.99	8.77	2.57	19.00	6.67
P. intezz	12.00	25.00	36.62	4.94	8.54	1.98	19.33	8.33
C.F. orange	14.67	27.67	42.60	6.19	8.53	2.20	18.67	7.33
Rich	14.67	28.00	36.33	6.16	7.73	2.07	17.33	9.00
Stanza	16.33	32.00	37.17	6.78	9.50	1.23	17.67	7.33
Lieke	14.00	25.33	35.20	6.96	8.30	1.20	18.00	6.67
Turbin	17.67	24.33	33.50	6.50	8.50	1.30	16.00	6.33
C.F. gold	20.00	31.67	41.57	6.15	8.23	2.23	17.33	7.00
Rising sun	30.00	40.33	32.10	6.10	8.00	1.20	16.00	6.33
Violet	20.33	40.67	30.50	4.31	6.10	1.40	15.33	6.33
Lion	19.67	29.67	39.63	5.33	8.93	2.13	18.00	6.00
CD (0.05)	3.48	2.17	1.16	0.22	0.07	0.03	0.24	0.05

6. Recommended varieties:

i. Varieties developed

Varieties RCGH-12, RCGH-22, RCGH-114 and RCGH-117 are recommended for growing under irrigated and open conditions.

iii. Planting materials produced and supplied

About 21,330 nos. of gerbera hybrids were supplied to farmer's field/ KVKs/ Horticulture Department, Govt. of Meghalaya through demonstration and for evaluation under open field conditions.

iv. Training/ extension programme organized

A demonstration on 'Gerbera hybrids cultivation under open field conditions for resources poor farmers' was organized by the Horticulture Division, ICAR Research Complex for NEH Region, Umiam, Ri-Bhoi at Umran, Ri-Bhoi District, Meghalaya on 11/02/2016 under Tribal sub Plan. The main aim of the demonstration was to impart practical knowledge on advance techniques of gerbera cultivation to improve the livelihood of resource poor tribal farmers. About 28 farmers participated in the programme. During the programme, the gerbera growers were first highlighted on the potential, marketing and profitability of gerbera cultivation. On-hand training and demonstration was carried out by the farmers on systematic layout of beds, planting spacing, seedling treatments, nutrients management, health management, stages of harvesting and packaging of gerbera cut flowers. In addition, the production of quality gerbera suckers throughout the production chain was demonstrated. Furthermore, crop regulation in gerbera was also introduced to the farmers for better production and quality of flowers and suckers of gerbera hybrids. The promising gerbera hybrids developed by the ICAR Research Complex for NEH Regions, viz., RCGH-12, RCGH-22, RCGH-114 and RCGH-117 were distributed to the farmers. The feedback from the farmers shows that such event would improve their horticultural activities for better production and income generations. Inputs such as quality planting materials, manures, etc., were provided to the farmers following the lectures and interactions. They had expressed greater enthusiasm in learning several scientific practices.



Fig. Demonstration programme on “Gerbera hybrids cultivation under open field conditions for resources poor farmers’.

7. The details of new lines/ hybrids developed

Ref: Annexure I, II, III and IV

8. Meteorological data (2015-16)

Month	Temperature (°C)		Relative Humidity (%)		Rainfall (mm)
	Max	Min	Morning	Afternoon	
April, 2015	26.76	14.38	77.48	56.72	41.08
May, 2015	27.88	16.58	83.73	65.30	47.60
June, 2015	27.95	19.2	84.25	70.08	54.00
July, 2015	28.64	19.16	84.66	71.62	60.47
August, 2015	27.53	19.13	89.38	79.33	57.95
September, 2015	27.7	18.05	87.65	79.1	52.22
October, 2015	27.36	14.88	86.5	72.74	54.45
November, 2015	24.45	9.58	86.18	59.08	55.82
December, 2015	20.94	5.56	84.66	54.4	56.18
January, 2016	19.9	5.1	86.38	55.45	55.32

9. Research Publications/ Training/ symposium/seminar attended by the project staff.

Rymbai, H., Jha, A.K., Ngachan, S.V., Shimray, W., Rajiv Kumar . 2015. Blooms of Gerbera for year-round prosperity. *New Age Protected Cultivation. Vol. 1(1)*: 18-20. Published by the Indian Society of Protected Cultivation (ISPC), January-June 2015, www.ipsc.co.in

10. List of Project/ Experiment requested for deletion

The following experiments are yet to start due to non-availability of planting materials (ref: RC/Hort/7-C/2015/11884 adted 16.10.2015 and via Email from Directorate of Floricultural Research, regarding problems of the experiments under AICRP – Floriculture, dated 27.10.2015.)

Crop name	Project No.	Project/ Experiment Name	Remarks
Orchid	3.5.1	Effect of organic supplement on growth and flowering of Orchids.	New (Requested for deletion)
	3.5.2	Effect of biofertilizers on growth and flowering of Orchids.	New (Requested for deletion)
	3.5.3	Effect of inorganic nutrients on growth and flowering of orchids	New (Requested for deletion)
	3.5.3	Effect of inorganic nutrients on growth and flowering of orchids	New (Requested for deletion)
	5.6.1	Effect of holding solutions on keeping quality of orchid stems	New (Requested for deletion)



**DIVISION OF HORTICULTURE
ICAR RESEARCH COMPLEX FOR NEH REGION
UMROI ROAD, UMIAM - 793 103, MEGHALAYA**



No. RC/Hort/

Date: 04.05.2016

To,

The Director
Directorate of Floriculture Research
IARI, Pusa
New Delhi-110 012

Sub: Submission of annual report of AICRPF for the year 2015-16.

Sir,

Please find enclosed herewith Annual Report (2015-16) of the All India Co-ordinated Research Project on Floriculture of ICAR Research Complex for NEH Region, Umiam (Barapani) Centre.

This is for your kind information and necessary action.

Thanking you,

Sincerely Yours

(H. Rymbai)
Scientist (Hort)