

Course name: Production technology of underutilized vegetable crops (2+1)

Course number: HVSC-0509

S. NO	MCQ	Instructions	Module No
1.		Transplanting method of Chinese cabbage required seed rate per hectare?	1
		a)600-750g	Yes
		b)0.5-1kg	
		c)350-550 g	
2.		d)375-600g	
		Soil temperature requirement for seed germination in Leek is.....°C.?	1
		18-20	
		22-26	
3.		18-22	Yes
		12-16	
		Before transplanting, seedlings of reg cabbage raised from seed are allowed to grow in the nursery bed for a period ofmonths?	1
		A. a)1-1 1/2 months	Yes
4.		A. b)1-2 months	
		A. c)2-3 months	
		A. d)3-3 1/2 months	
		Kale is derived from which language	1
5.		a) Spanish word	
		c)Greek word	
		c)Scottish word	Yes
		d)Latin word	
6.		Seed requirement for one hectare cultivation for asparagus	1
		30-40 kg	
		3-4kg	Yes
		300-400g	
7.		30-40g	
		Karam sag is edible kale closely related to which kale	1
		a) Marrow stem kale	
		b) Chinese kale	Yes
8.		c)Culy kale	
		d)Smooth leafed kale	
		The tetraploid bulbous self-compatible perennial herbs are....	1
		Chinese chive	Yes
9.		Great headed garlic	
		Leek	
		European chive	
		Herbicides which are unfit for weed control in Chinese cabbage	1
10.		Atrazine, simagin	
		Alachlor & metachlor	Yes
		Simazine & metachlor	
		Oxyfluorfen& pendimethalin	

9.	Palampur Green is the open pollinated variety of India?		1
	a) Kale		
	b) Red cabbage		
	c) Chinese cabbage	Yes	
	d) leek		
10.	Chinese chives can be stored successfully at 0-1°C and 95-100 % RH for-----?		1
	a) 6-8 days		
	b) 10-16 days		
	c) 2-4 days		
	d) 7-14 days	Yes	
11. botanically known as Brassica oleracea var. acephala sub. medullosa?		1
	a) curly leaf kale		
	b) thousand headed kale		
	c) Chinese kale		
	d) marrow-stem kale	Yes	
12.	Seed requirement for one hectare cultivation for asparagus		1
	30-40 kg		
	3-4kg	Yes	
	300-400g		
	30-40g		
13.	i.) Origin place of chives is		1
	a) Italy		
	b) India		
	c) Europe	Yes	
	d) Brussels		
14.	The average yield of red cabbage is -----?		1
	a) 50-70t/ha	Yes	
	b) 120-150t/ha		
	c) 60-80t/ha		
	d) 90- 125t/ha		
15.	All cole crops originated from a common ancestor.....		1
	B. oleracea var sylvestris		
	B. oleracea var alboglabra		
	B. oleracea var. botrytis		
	B. oleracea var pekinensis	Yes	
16.	“Ta’amyia” is a famous fried Egyptian dish is prepared from which plants----?		1
	Leek		
	Kurrat		

	Chives		
	Chinese chives	Yes	
17.	In North India Chinese cabbage crop seeds are generally sown in?		1
	a) October-November		
	b) September-October	Yes	
	c) June-July		
	d) April-May		
18.	The basic chromosome number of Collards and leek		1
	a) n=18 & 8		
	b) n=9 & 8	Yes	
	c) n=16 & 12		
	d) n=32 & 16		
19.	----- are propagated by both seed and Division of clumps in existing bulbs.		1
	a) Great headed garlic & chives		
	b) Asparagus & Chinese chive		
	c) Leek & asparagus		
	d) European chives & Chinese chives	Yes	
20.	Match the following?		1
	a) <i>B. oleracea</i> var. <i>viridis</i> 1) thousand headed kale		
	b) <i>B. oleracea</i> var. <i>acephala</i> sub. <i>laciniata</i> 2) tree kale		
	c) <i>B. oleracea</i> var. <i>acephala</i> sub. <i>millecapitata</i> 3) collards		
	d) <i>B. oleracea</i> var. <i>acephala</i> sub. <i>palmifolia</i> 4) smoot kale		
	e) <i>B. oleracea</i> var. <i>acephala</i> sub. <i>Plana</i> 5) curly kale		
	a) 3,5,1,2 & 4	Yes	
	b) 2,5,2,4 & 1		
	c) 3,5,2,4 & 1		
	d) 3, 4, 2, 1 & 5		

Total No. of Pages: 2

Program

HVSC-0509

2nd Semester Examination: May 2023

PRODUCTION TECHNOLOGY OF UNDERUTILIZED VEGETABLE CROPS

Full Marks: 50

Time: 3 Hrs.

*Answer Part-A, Part-B & Part-C as per the instructions there in.
The figure in the right hand margin indicates marks.*

PART – A

[10]

1. Fill in the blanks: [10x0.5=5]
- a) The optimum average temperature requirements for proper growth and development of oriental pickling melon..... and snap melon.....
 - b) Tropical perennial vegetable crops of India and
 - c) The tropical underutilized tuber crops suitable for partial shade condition.....
 - d) Pencil strip disorder of celery is due to.....and *S. tetrandra* related to which crop.....
 - e) Chinese chives can be stored successfully at 0-1°C and 95-100 % RH for-----? days
 - f) The center of origin of butter bean and Yam bean are..... and
 - g) Monocotyledone perennial vegetable with basic chromosome number $x=10$ is.....
 - h) Direct sowing of Chinese cabbage requiredseed rate per hectare.
 - i) Blanching is an important operation, and vegetables
 - j) Four angled bean protein content in pods..... And leaves.....
2. Matching Table: [10x0.5=5]
- | | |
|--|--|
| a) <i>Allium tuberosum</i> | () i) smooth leafed kale |
| b) <i>Canavalia gladiata</i> | () ii) $2n=4x=32$ |
| c) <i>B. Oleracea sub.acephala var.Plana</i> | () iii) snap melon |
| d) Chefoo | () iv) Parsnip |
| e) <i>Cucumis melo var. Momordica</i> | () v) <i>B.rapa subsp.pekenesis var. cepalata</i> |
| f) chihili | () vi) Euphorbiaceae |
| g) <i>Sauropus androgynous</i> | () vii) $2n=16$ |
| h) <i>Allium schenoprasum</i> | () viii) Parsley |
| i) <i>Cucumis melo var. utilissimus</i> | () ix) cross pollinated & sword shape pods |
| j) <i>Petroselinum hortense</i> | () x) Long melon |
| | () xi) <i>B.rapasubsp.pekenesis var. cylindrica</i> |

PART – B

[20]

3. Choose the correct answer or True/ False statement: [10x1=10]
- a) Bathua Chenopodium album belongs to the family Chenopodiaceae
 - b) Optimum temperature range for celery is 20-25°C.
 - c) Arka Neelachal Shanti is a variety of pointed gourd
 - d) Kale is crowned as queen of greens because it has highest in Vitamin-A
 - e) Probable ancestor of Collards is brassica alboglabra -Chinese kale
 - f) Madagascar in Africa is the center of origin of the Winged bean
 - g) Pusa Uthkarsh and Arka Sheetal are the varieties of long melon (Cucumis melo var. utillismus)
 - h) Malabar spinach and sweet corn are C4 plants
 - i) Parsley is propagated through suckers
 - j) Vegetative parthenocarpy seen in perennial cucurbit Coccinia grandis.
4. Differentiation or define or abbreviations or statement: [10x1=10]
- a) Define Underutilized vegetables
 - b) Teasle gourd
 - c)CHES
 - d)Difference between Collards vs Kale
 - e) classification of Parsley
 - f) Difference between spine gourd/sweet gourd
 - g) Nutritional importance of kachri and yam bean
 - h) Leek and round melon
 - i)Indian spinach /Spinach
 - j) Baby corn vs sweet corn

PART – C (Answer any Four)

[4x5=20]

- 5. Propagation techniques in diecious perennial viny cucurbits [5]
- 6. Package of practices in orphan legume vegetables. [5]
- 7. Maturity indices in leafy and salad under-utilized vegetables. [5]
- 8. Soil and climatic requirements of Asparagus, elephant foot yam, Indian spinach and gherkin. [5]
- 9. Write short notes on any **One**:- [5]
 - a) Multivitamin greens/Red cabbage
 - b) Post-harvest management of under-utilized vegetables

Total No. of Pages: 2

Program

HVSC-0509

2rd Semester Examination: May 2023

PRODUCTION TECHNOLOGY OF UNDERUTILIZED VEGETABLE CROPS

Full Marks: 50

Time: 3 Hrs.

*Answer Part-A, Part-B & Part-C as per the instructions there in.
The figure in the right hand margin indicates marks.*

PART – A

[10]

2. Fill in the blanks:

[10x0.5=5]

- a) sex form Gherkin monoecious And Spinach. Dicocious
- l) Stem kale, botanically known as Brassica oleracea var. acephala sub. medullosa.
- m) The under-utilized vegetables suitable for cultivation under shade/partial shady conditions are Elephant foot yam and Basella/Indian spinach
- n) “Ta’amyia” is a famous fried Egyptian dish is prepared from which plants-**Chinese chive**
- o) Pusa Raunak is variety of which vegetable crop Round melon
- p) The center of origin of snake gourd.....and Collards **Mediterranean region**
- q) Number of Vine cuttings required for raising Basella And Pointed gourd **2000-2500 cuttings** per one hectare.
- r) Blanching is an important operation in Asparagus and Celery vegetables.
- s) **Chives** are propagated by both seed and Division of clumps in existing bulbs.
- t) Seed rate requirement of Chinese cabbage ...2.5kg.....and Celery **300-400g** per hectare.

10. Matching Table:

[10x0.5=5]

- | | | |
|--------------------------|----------|--------------------------------------|
| a) Allium ampeloprasum | (ii) | i)Elephant foot yam |
| b) Canavalia gladiata | (ix) | ii) $2n=4x=32$ |
| c)Jack bean | (iii) | iii) Cannavalin A |
| d) Ca oxalates | (i) | iv)Rotenone |
| e) Arka Neelachal Sabuja | (v) | v)Scarlet gourd |
| f) Dioscorine | (xi) | vi)Indo -Burma |
| g) Sauropus androgynous | (vi) | vii) $2n=16$ |
| h) Pachyrhizus erosus | (iv) | viii)Parsley |
| i)Teasle gourd | (x) | ix) $2n=22$ |
| j) Petroselinum hortense | (viii) | x)Segmental allopolyploid($2n=56$) |
| | () | xi) Dioscorea alata |

PART – B

[20]

- 11.** Choose the correct answer or True/ False statement: [10x1=10]
- a) Bathua Chenopodium album belongs to the family Chenopodiaceae **T**
 - b) Optimum temperature range for Chinese chive is 20-25°C. **T**
 - c) Kashi Suphal is a variety of pointed gourd **T**
 - d) Kale is crowned as queen of greens because it has highest in Vitamin-A **T**
 - e) Fuyu is a product made from yams **T**
 - f) Multiflorous bean originated in Madagascar is treated as God scented vegetable. **T**
 - g) Sree Athira is the varieties of yam **F**
 - h) Seed rate of spinach is 37-45 kg/ha **T**
 - i) Baby corn is propagated by seed and belongs to the family alliaceae **F**
 - j) Vegetative parthenocarpy seen in perennial cucurbit Coccinia grandis. **T**
- 12.** Differentiation or define or abbreviations or statement: [10x1=10]
- a) Define Underutilized vegetables
 - b) Snake gourd
 - c) WVC
 - d) Difference between Pet sai vs Pak choi
 - e) classification of kale
 - f) Difference between Greater yam/lesser yam
 - g) NBPGR
 - h) Asparagus-canning
 - i) Physiological disorders Celery
 - j) Double harvesting

PART – C (Answer any Four)

[4x5=20]

- 13.** River bed cultivation in perennial cucurbits. [5]
- 14.** Major pests, symptoms and their management in leafy and salad under-utilized vegetables. [5]
- 15.** Season, Seed rate, method of planting and spacing requirements in snap melon sweet corn and winged bean. [5]
- 16.** Cultivation practices of yam and yam bean. [5]
- 17.** Write short notes on any **One**:- [5]
- a) climate and soil requirements of Indian basella, Chive, lima bean and Jack bean
 - b) Commercial varieties/hybrids-round melon, yam, reg cabbage, leek and sweet corn

Q. Climate and soil requirements of Indian basella, Chive, lima bean and Jack bean

Ans:

Chive

- Chives are cold hardy but tolerant to high temperature
- Optimum temperatures are between 17°C and 25°C.

It can tolerate wide range of soil conditions but fertile well drained soils with medium loams and with a pH range of 6-7 is considered most suitable.

Indian Spinach:

It is short day, succulent climbing vine summer season leafy vegetable.

- It requires warm, frost free and moist season.
- The optimum range of temperature is required for its growth is 25-32°C.
- It can be successfully grown under partial shade.
- **Soil requirement:**
- It can be grown on wide range of soils but prefers well manured and drained sandy loam acidic soils.

Lima bean:

Climate

- Lima bean is a cool season vegetable requiring dry and cool climate
- It grows well at a temperature range of 15-20°C.
- When temperature goes above 26°C pollination and fertilization are impaired with results of the pod formation is severely reduced.
- In plains it can be grown as winter vegetable.
- While in hills it is grown during spring and rainy season.
- It doesn't tolerate frost.
- with an average rainfall of 50-62.5cm
- Compared to other legumes, it is a long-duration crop and is retained in field for 9 months.
- **Solis:**
- It can be grown on a wide range of soils from light sandy loams to heavy clay.
- Ideal pH reaction 6.0-6.5.
- Light soils will stimulate early growth and maturity.
- Heavy soils will allow the plants to grow profusely.

Jack bean:

Climate and soil

- It is a warm-season crop.
- It requires a mean temperature of 29-30°C.

Q.9 b) Commercial varieties/hybrids-round melon, yam, reg cabbage, leek and sweet corn

Round melon: Pusa Raunak and Arka Tinda

Yam: Greater yam: Sree Roopa, Sree Shilpa, Sree Karthika, Indu

Lesser yam: Sree Latha, Sree Kala

White yam: Sree Subhra, Sree Priya

Red Cabbage: Charleston Wakefield, Mammoth Red rock, Red Express, Red Rock, Ruby ball, Primero etc

Leek: Palam Paustik, London Flag, American Flag, Italian Gaint and Mussel Burgh

Sweet corn: Orange sweet corn(hybrid), Priya sweet corn(hybrid), Madhuri(hybrid), Sugar 75, Golden honey, Super honey.

Total No. of Pages: 2

Program

MAVS1205

1st Semester Examination: March 2022

PRODUCTION TECHNOLOGY OF UNDER EXPLOITED VEGETABLE CROPS

Full Marks: 25

Time: 2 Hrs.

*Answer Part-A, Part-B & Part-C as per the instructions there in.
The figure in the right-hand margin indicates marks.*

PART – A

[5]

3. Fill in the blanks: [5x0.5=2.5]
- a) sex form Ivy gourd
 - v) Production of rhubarb during in winter season is called as
 - w) The storage atmosphere with % CO₂ and.....% O₂ reduces the yellowing without injury at 0°C in brussels sprouts.
 - x) The tuber of winged bean contains.....
 - y) Botanical name of celeriac.....

18. Matching Table: [5x0.5=2.5]

- | | |
|------------------------|--|
| a) Chekurmanis | 1) West Indies |
| b) Jack bean | 2) 2n=102 |
| c) Parsley | 3) <i>B. oleracea var. viridis</i> |
| d) Collards | 4) Fe |
| e) Jerusalem artichoke | 5) Cross pollinated 21 st vegetable |

PART – B

[10]

19. Choose the correct answer or True/ False statement: [5x1=5]

- 1. a) Browning of heads in broccoli is a physiological disorder.
- b) Low night temperature is responsible for flavoring of spinach leaves.
- c) The botanical name of jack bean is *Canavalia gladiata*
- d) Elongation and tip bending is a disease of Asparagus.
- e) Pet sai resembles Swiss chard

20. Differentiation or define or abbreviations or statement: [5x1=5]

a) Spine gourd vs sweet gourd

b) CHES

b) Pet sai vs Pak-choi

c) Pole/bush lima bean

d) Propagation in poi

e) Kale vs Collards

PART – C (Answer any Two)

[2x5=10]

1. Package of practices in elephant foot yam

[5]

2. Propagation techniques in Globe artichoke, Rhubarb and Asparagus

[5]

3. Production technology of Amaranthus

[5]

4. Write short notes on any **One**: -

[5]

a) Propagation of diecious under exploited vegetable crops

b) botanical classification of lettuce

Total No. of Pages: 2

Program

MAVS1205

1st Semester Examination: March 2022

PRODUCTION TECHNOLOGY OF UNDER EXPLOITED VEGETABLE CROPS

Full Marks: 25

Time: 2 Hrs.

Answer Part-A, Part-B & Part-C as per the instructions there in.

The figure in the right-hand margin indicates marks.

PART – A

[5]

4. Fill in the blanks:

[5x0.5=2.5]

a) sex form Ivy gourd Diecious -

aa) Production of rhubarb during in winter season is called as Forcing

bb)The storage atmosphere with 10% CO₂ and 2.5% O₂ reduces the yellowing without injury at 0°C in brussels sprouts.

cc) The tuber of winged bean contains 8.2 -31.0% of protein.

dd) Botanical name of celeriac. *A. graviolens var rapaecum*

21. Matching Table:

[5x0.5=2.5]

a) chekurmanis

1) west indies

b) Jack bean

2)2n=102

c)parsley

3) *B. oleracea var. viridis*

d)collards

4) Fe

e) Jerusalem artichoke

5) Cross pollinated 21st vegetable

PART – B

[10]

22. Choose the correct answer or True/ False statement:

[5x1=5]

2. a) Browning of heads in broccoli is a physiological disorder(T).

- b) Low night temperature is responsible for savoring of spinach leaves. (T)
- c) The botanical name of jack bean is *Canavalia gladiata* (F)
- d) Elongation and tip bending is a disease of Asparagus. (F)
- e) Pet sai resembles Swiss chard (F)

23. Differentiation or define or abbreviations or statement: [5x1=5]

- a) a) Spine gourd vs sweet gourd
- b) CHES
- b) Pet sai vs Pak-choi
- c) pole/bush lima bean
- d) propagation in basella
- e) . kale vs collards

PART – C (Answer any Two)

[2x5=10]

24. Package of practices in elephant foot yam

25. Propagation of diecious under exploited vegetable crops

[5]

26. Production technology of Amaranthus

[5]

27. Write short notes on any **One**: -

[5]

a) Globe artichoke

b) Types of lettuce

