

Lettuce Production Patterns and Practices



California and Arizona

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Dole Fresh Vegetables

Lettuce Production Patterns and Practices

- Timelines of growing and harvesting activities in each growing region
- Comparison of ground preparation activities
- Pattern of growing activities for a single ranch
- Comparison of growing conditions and irrigation practices between growing regions

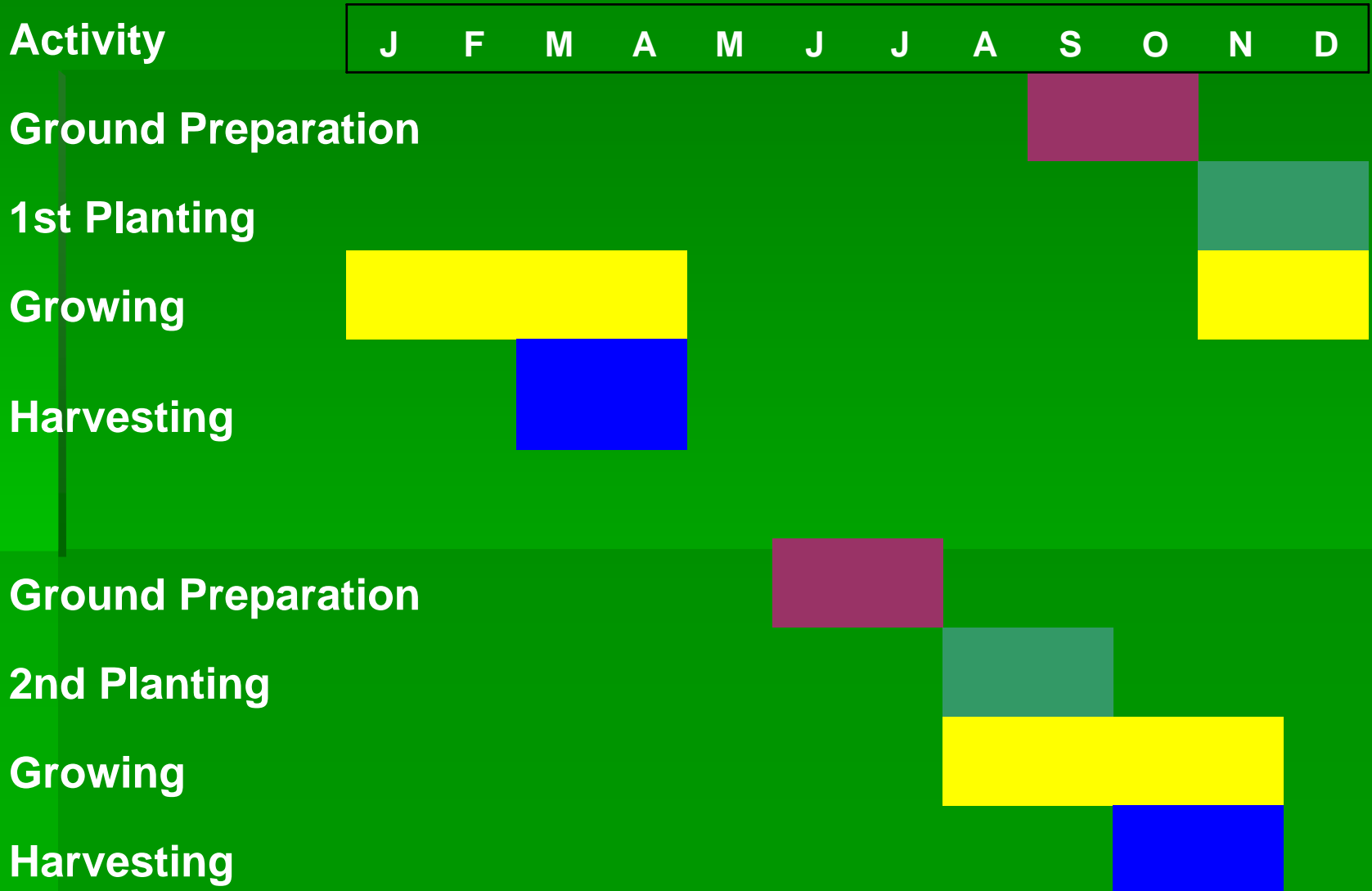
Timeline - Salinas/Santa Maria Production Activities

Activity	J	F	M	A	M	J	J	A	S	O	N	D
Planting	1 st crop				2 nd crop							
Growing	Yellow bar							Yellow bar				
Harvesting				Blue bar								
Ground Preparation					Mid season			Year end				

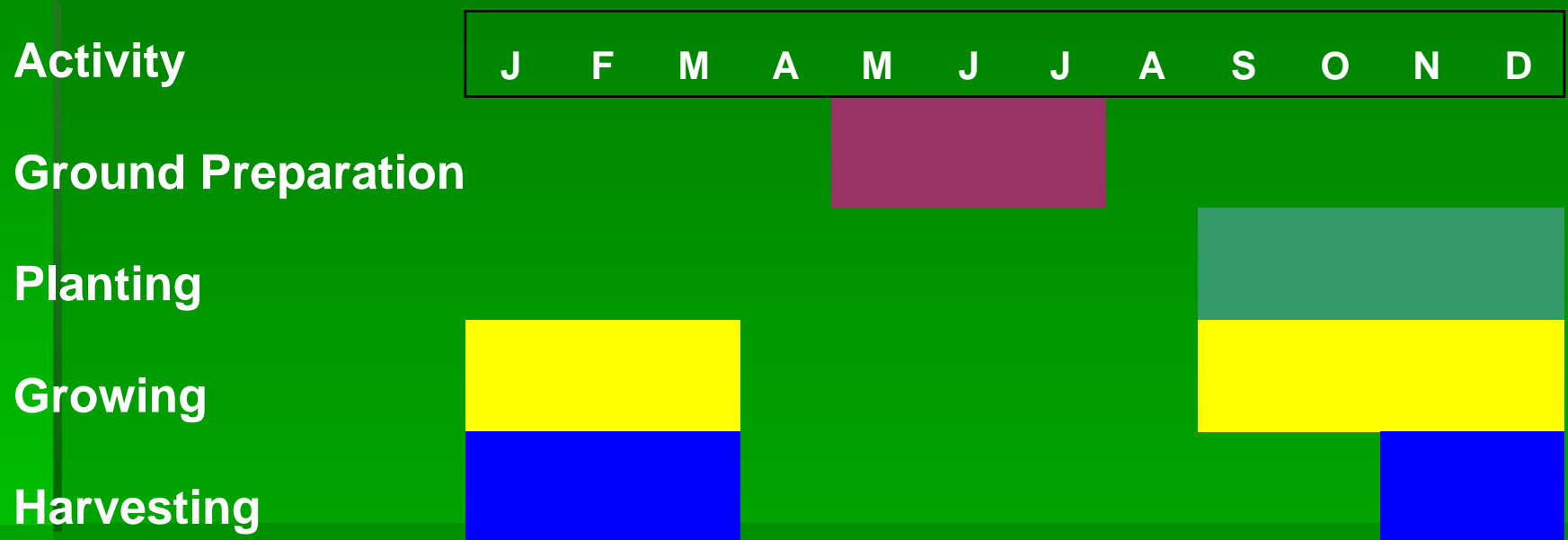
Timeline is for iceberg lettuce; leaf lettuce and romaine harvest through November. Spring mix and spinach are planted from January through October and harvest February through November.

Two types of groundwork occur during the season. The mid-season groundwork between crops and the year end groundwork in preparation for the crops planted in the next year.

Timeline – Huron Production Activities



Timeline – Imperial/Yuma Production Activities



Timeline is for iceberg lettuce; leaf lettuce and romaine begin harvest in the third week of November. Spring mix and spinach are planted from October through February and harvest November through March.

Minor groundwork is conducted at the end of each lettuce crop for subsequent rotation crops (wheat, alfalfa, etc). Major groundwork is conducted during the summer.

Ground Preparation Practices – Salinas/Santa Maria

	Mid Season - minimum <u>tillage</u>	Mid Season – conventional <u>tillage</u>	Final Ground <u>preparation</u>
No. of days to <u>completion</u>	7 – 10	10 - 20	20 - 30
No. of tillage <u>activities</u>	5 – 8	9 - 17	11 - 19
Inorganic/organic amendments <u>applied</u>	Conventional – No Organic - Yes	Occasional	Yes

Field Postharvest



Minimum Tillage – Rolling Cultivator



Forming Planting Beds



Conventional Discing



Subsequent Discing



Deep Soil Ripping



Discing and Field Leveling



Production Patterns on Individual Ranch



Multiple lots are in production simultaneously

Different lots can be in production of different crops

Planting, growing and harvesting can occur simultaneously on same ranch

Production Patterns on Salinas/Santa Maria ranches

Lot 1

Plant – Lettuce in Jan.

Harvest - April

Work Ground - May

Plant – Lettuce in May

Harvest - Aug.

Work Ground. – Aug./Sept.

Lot 2

Strawberries – planted previous Oct./Nov.

Harvest – April – Oct.

Work Ground. – Nov.

Lot 3

Plant – **Broccoli** in Mar.

Harvest - June

Work Ground - July

Plant – Lettuce in July

Harvest – Sept.

Work Ground. - Oct.

Lot 4

Plant – Lettuce in April

Harvest - July

Work Ground - July

Plant – Lettuce in Aug.

Harvest - Oct.

Work Ground. - Nov.

Comparison of Cropping

	<u>Salinas/Santa Maria</u>	<u>Huron</u>	<u>Imperial/Yuma</u>
No. of crops per land acre <u>Per year</u>	2 - 3	2	1
Same land in consecutive <u>years</u>	Yes	No	No
Direct Seed Crop Growth <u>Periods</u>	120 days 60 days 80 days	140 - 120 days 60 - 75 days	60 days 120 days 100 days

Comparison of Weather

	<u>Salinas/Santa Maria</u>	<u>Huron</u>	<u>Imperial/Yuma</u>
Temps during growing → <u>harvest</u>	Cool to Warm Warm to Cool	Cold to Warm Hot to Warm	Hot to Cold Cold to Warm
Rainfall amount and <u>timing</u>	12 – 15 inches Nov. – Mar.	8 – 12 inches Nov. – Mar.	2 – 3 inches July – Sept.
Possible <u>Flooding Events</u>	Jan. – Mar. adjacent to creeks/rivers	Excess rainfall can collect in individual fields	Excess rainfall can collect in individual fields

Comparison of Water and Amendments

	<u>Salinas/Santa Maria</u>	<u>Huron</u>	<u>Imperial/Yuma</u>
Main Source of Water	Deep wells, storage in reservoirs	Canals	Canals
Amendment application timing	Aug. – Oct.	June, Oct.	May – June
Use of Organic amendment sources	Widespread	No	Widespread

Comparison of Irrigation Practices

	<u>Salinas/Santa Maria</u>	<u>Huron</u>	<u>Imperial/Yuma</u>
<u>Sprinkler</u>	Germination Crop Growth	Germination	Germination
<u>Furrow</u>	Crop Growth	Crop Growth	Final irrigation
<u>Drip</u>	Crop Growth	Crop Growth	Crop Growth
<u>Flood</u>	No use	No use	Crop Growth

Spring mix and baby spinach are irrigated throughout entire crop with sprinkler irrigation in all areas.

Sprinkler irrigation



Furrow and Flood Irrigation



Furrow irrigation is used in all areas. A gated pipe is placed at end of rows and water is delivered to groups of furrows at the same time.

Flood irrigation is used in Imperial/Yuma. A basin is created at the end of the field and filled with water. Siphon tubes deliver the water to each furrow.



Drip Irrigation



Comparison of Irrigation Practices

- Tailwater discharge
 - No reuse conditions
 - Drainage lines or end of field discharge into adjacent waterways
 - Drainage ditch capture at end of field and subsequent percolation
 - Possible reuse conditions
 - Drainage lines or end of field diversion into reservoir

