



**New Farms for  
New Americans**

# IMPROVING LANDS, IMPROVING LIVES: URBAN AGRICULTURE & LEADERSHIP PROGRAM



## CLASS HANDBOOK



**New Farms for  
New Americans**



**United States Department of Agriculture**  
Natural Resources Conservation Service



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# Greenhouse

## POTS AND TRAYS



- 1 **CLEAN** PLASTIC POTS & SEED TRAYS WITH SOAP & WATER
- 2 **DISINFECT** WITH A DILUTED MIX OF BLEACH & WATER



## SEED STARTING MIX



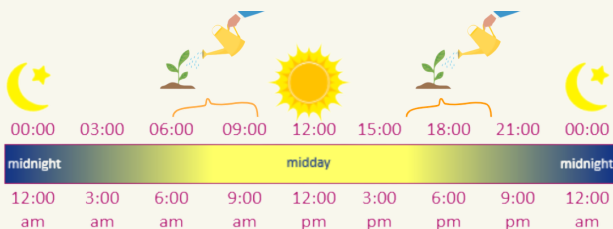
USE **NEW MIX** EVERY YEAR

**DO NOT** USE SOIL FROM YOUR GARDEN



## WATER

**BEST TIMES TO WATER:**



KEEP THE SEED STARTING MIX **MOIST** UNTIL SEEDS GERMINATE.

AFTER GERMINATION, WATER WHEN THE SURFACE OF THE SOIL IS **A LITTLE DRY**.



**TOO MUCH WATER**

**GREEN ALGAE** GROWS ON THE SOIL



**ONCE A WEEK, USE A LIQUID FERTILIZER TO:**

- GROW **HEALTHY** PLANTS
- GROW **BIGGER** PLANTS
- **AVOID** PESTS & DISEASES



**"SOIL PRODUCT CHART"** ON PAGE 5 DESCRIBES PRODUCT NAMES & HOW TO USE

# Greenhouse

## PESTS - APHIDS



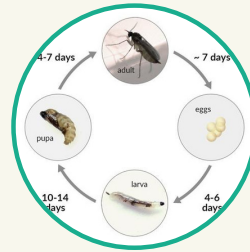
### PROBLEMS:

- APHIDS SPREAD DISEASES
- PLANTS GROW WEAK

### SOLUTIONS

- INSPECT LEAVES EVERY DAY
- USE FINGERS TO REMOVE AND KILL APHIDS
- USE A NATURAL SPRAY

## PESTS - FUNGUS GNATS



### PROBLEMS:

- LEAVES TURN YELLOW
- LARVA EATS ROOTS

### SOLUTIONS:

- INSPECT PLANTS EVERY DAY
- WATER LESS FREQUENTLY
- USE STICKY TRAPS TO MONITOR
- USE A NATURAL SPRAY

## DISEASE - DAMPING OFF



### PROBLEMS

- STEMS DRY OUT
- PLANTS DIE

### SOLUTIONS

- DISINFECT ALL POTS & TRAYS
- USE NEW SEED STARTING MIX
- WATER LESS FREQUENTLY

## NATURAL PEST CONTROL



"PEST CONTROL CHART" ON PAGE 9  
DESCRIBES PRODUCTS & HOW TO USE

## HEALTHY & STRONG TRANSPLANTS



**DIRECT SUN** AND **COLD SPRING AIR**  
CAN DAMAGE SMALL PLANTS



**SOLUTION:** "HARDEN OFF" PLANTS **NEXT TO THE GREENHOUSE** OR  
**BUILD A SHADE TENT** IN YOUR GARDEN:

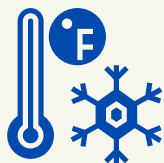
- 1 USE ROW COVER TO MAKE SHADE
- 2 LEAVE TRAYS AND POTS IN THE SHADE FOR 2-3 DAYS
- 3 TRANSPLANT ON A CLOUDY DAY





# Weather & Planting Dates

## LAST FROST IN SPRING



AVERAGE **LAST FROST**  
IN BURLINGTON

**MAY 10-20**

**MAY** IS OFTEN **TOO COLD** TO PLANT MANY  
VEGETABLES IN VERMONT.

**WAIT** UNTIL NIGHTS ARE **WARM!**

## WHEN TO PLANT

**TRANSPLANT** IN FIELD WHEN **NIGHT TEMPERATURE** IS:

40°F / 5°C OR ABOVE  
**EARLY MAY**



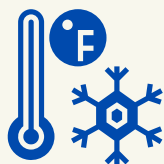
50°F / 10°C OR ABOVE  
**MID TO LATE MAY**



60°F / 15°C OR ABOVE  
**EARLY TO MID JUNE**



## FIRST FROST IN FALL



AVERAGE **FIRST FROST**  
IN BURLINGTON

**OCTOBER 1-10**

## HARVEST

HARVEST ALL **HEAT-LOVING CROPS** BEFORE **NIGHT TEMPERATURE** IS:

BELOW 40°F/5°C  
**LATE SEPTEMBER TO EARLY OCTOBER**



# Soil

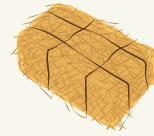
## HEALTHY SOIL = HEALTHY PLANTS



EARTHWORMS  
ARE BENEFICIAL



ADD FERTILIZER  
EVERY YEAR



MULCH  
PROTECTS SOIL



### COMPOST

ADDS NUTRIENTS,  
ORGANIC MATTER &  
IMPROVES SOIL HEALTH



### ORGANIC MIX

PROVIDES BALANCED  
NUTRIENTS FOR MOST  
VEGETABLES



### MANURE

ADDS NUTRIENTS,  
ORGANIC MATTER &  
HELPS LEAVES GROW



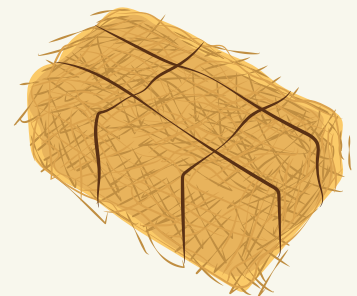
## MULCH

USE STRAW OR DRY GRASS  
TO COVER THE SOIL AROUND PLANTS



### BENEFITS:

- FEWER WEEDS
- LESS WATERING
- FEWER DISEASES
- MORE ORGANIC MATTER





# Soil Product Chart

## SEED STARTING MIX



- USE IN THE **GREENHOUSE**
- USE TO FILL **TRAYS AND POTS**

## LIQUID FERTILIZERS



- USE IN THE **GREENHOUSE**, SPRAY **1 TIME PER WEEK**
- USE IN THE **FIELD** DURING **TRANSPLANTING**



2  
TABLESPOONS  
FERTILIZER



1 GALLON  
WATER

## COMPOST



- USE IN THE **FIELD**
- ADD **1 HANDFUL** OF COMPOST TO EVERY TRANSPLANTING HOLE

## ORGANIC FERTILIZER MIXES



- USE IN THE **FIELD**
- USE ONE **25 POUND BAG** FOR YOUR GARDEN PLOT
- **SPREAD** ON PLANTING BEDS AND **MIX IN** WITH A RAKE

## MANURE



- USE IN THE **FIELD**
- ADD **1 HANDFUL** WHEN PLANTING **CORN**

# Tomatoes

## PLANTING DATES



**START**  
SEEDS IN GREENHOUSE

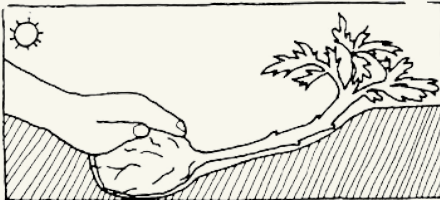
EARLY APRIL  
APRIL 1-15



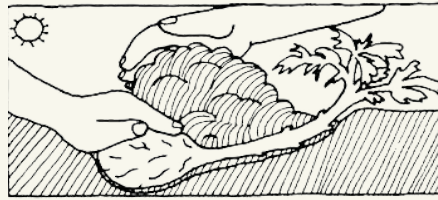
**TRANSPLANT**  
TO FIELD

LATE MAY  
AFTER MAY 20

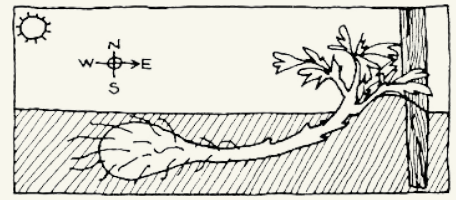
## TRANSPLANTING TIPS



TOMATOES CAN BE  
PLANTED **HORIZONTALLY**



**MORE ROOTS** WILL GROW  
FROM THE BURIED STEM



TOMATO PLANTS WILL BE  
**STRONGER & HEALTHIER**

## TYPES OF TOMATOES

"**DETERMINATE**"  
TOMATOES ARE  
**SHORTER** IN SIZE  
AND PRODUCE FRUIT  
**ALL AT ONCE**



DETERMINATE

"**INDETERMINATE**"  
TOMATOES ARE  
**TALLER**, REQUIRE  
TRELLISES, AND  
PRODUCE FRUIT FOR  
**SEVERAL WEEKS**



INDETERMINATE

## SEED SAVING

SAVE SEEDS  
FROM  
"**OPEN**  
**POLLINATED**"  
AND  
"**HEIRLOOM**"  
VARIETIES



DO NOT SAVE SEEDS FROM  
"**HYBRID**" VARIETIES



# Weeds

WHAT HAPPENS WHEN  
MANY WEEDS GROW IN THE  
GARDEN?



- **VEGETABLES COMPETE** FOR NUTRIENTS IN THE SOIL
- MORE **DISEASES & PESTS**
- **MORE WEEDS** NEXT YEAR

## STRAW MULCH



### HOW TO USE

- SPREAD A THICK LAYER OF STRAW AROUND PLANTS
- USE IN PATHWAYS

### BENEFITS

- ADDS ORGANIC MATTER
- EASY TO USE

### DISADVANTAGES

- SOME WEEDS STILL GROW
- NEED TO APPLY MORE EVERY YEAR

## BLACK PLASTIC



### HOW TO USE

- ON RAISED GARDEN BEDS
- GREAT FOR PEPPERS, ONIONS, CUCUMBERS

### BENEFITS

- NO WEEDS
- WARMS UP THE SOIL

### DISADVANTAGES

- USE IT ONCE AND THROW IT AWAY
- DO NOT USE IN PATHWAYS

## WEED MAT



### HOW TO USE

- BEST FOR CUCUMBER, MELON, SQUASH
- USE IN PATHWAYS

### BENEFITS

- NO WEEDS
- RE-USE FOR MANY YEARS
- WARMS UP THE SOIL

### DISADVANTAGES

- MORE EXPENSIVE

## COVER CROP



### HOW TO USE

- SPREAD SEEDS ON EMPTY BEDS & IN PATHWAYS
- SPREAD SEEDS AROUND BIG PLANTS

### BENEFITS

- ADDS NUTRIENTS
- EASY TO USE
- BUCKWHEAT IS EDIBLE!

### DISADVANTAGES

- NEED TO PLANT AT THE RIGHT TIME

# Pests

## FLEA BEETLE



### INSECT

- VERY SMALL SIZE
- BLACK COLOR
- INSECTS JUMP FAST



### DAMAGE

- TINY HOLES IN LEAVES
- SMALL PLANTS MAY NOT SURVIVE



## WHAT TO DO



USE ROW COVER



GROW CROPS IN  
LATE SUMMER  
(AUG/SEPT)



## TIPS FOR USING ROW COVER

- 1 USE **IMMEDIATELY** AFTER SOWING SEEDS OR TRANSPLANTING
- 2 **TUCK IN** THE SIDES AND ENDS OF THE FABRIC BY **BURYING WITH SOIL**
- 3 "**ALL PURPOSE**" CAN BE USED EVERY MONTH
- 4 "**HEAVYWEIGHT**" SHOULD BE USED IN MAY AND SEPTEMBER
- 5 **DRY, FOLD, AND SAVE** TO USE NEXT SEASON

## COLORADO POTATO BEETLE



### INSECT

- EGGS ARE ORANGE
- LARVA ARE RED WITH BLACK DOTS
- ADULTS ARE YELLOW WITH BLACK STRIPES



### DAMAGE

- ENTIRE LEAVES ARE EATEN
- PLANTS GROW SLOWER & WEAKER



## WHAT TO DO



USE YOUR FINGERS TO  
REMOVE AND KILL  
EGGS, LARVA &  
BEETLES



USE ROW COVER



DELAY PLANTING  
POTATOES UNTIL LATE  
JUNE



SPRAY A NATURAL  
PESTICIDE



"PEST CONTROL CHART" ON PAGE XX  
DESCRIBES PRODUCT NAMES & HOW TO USE



# Pest Control Chart

## TIPS

- ONLY **TRANSPLANT HEALTHY PLANTS**
- **PLANT EGGPLANTS & POTATOES IN LATE JUNE**
- USE **ROW COVER**
- **HAND-PICK & KILL INSECTS**
- ONLY IF NECESSARY, USE AN **ORGANIC** PEST CONTROL SPRAY & FOLLOW THE **INSTRUCTIONS**

## SPRAY OR CONCENTRATED LIQUID



**READY TO SPRAY**



**CONCENTRATE**

**READ INSTRUCTIONS TO ADD WATER**

## HOW TO USE



**SPRAY INSECT**

**WAIT 1 WEEK**  
IF NECESSARY,  
SPRAY AGAIN



**SPRAY LEAVES**

**WAIT 1 WEEK**  
IF NECESSARY,  
SPRAY AGAIN



**CONCENTRATE BOTTLES NEED TO BE DILUTED WITH WATER:**

**1 TABLESPOON + 1 QUART WATER**



**SPRAY LEAVES**

**WAIT 4 DAYS**  
IF NECESSARY, SPRAY AGAIN



# Medicinal Plants

## CALENDULA



EXCELLENT FOR  
SKIN CARE

HEALS BURNS,  
RASHES, SCRAPES

GOOD FOR CHILDREN  
& ADULTS

## LEMON BALM



GOOD FOR WINTER  
HEALTH

HELPS RELAX AND  
SLEEP

IMPROVES MOOD  
AND HAPPINESS

## THYME



GOOD FOR  
RESPIRATORY  
SYSTEM

HEALS COUGHS &  
CONGESTION

TASTY IN A SYRUP

## CHAMOMILE



GOOD FOR DIGESTION

HELPS RELAX AND  
SLEEP

GOOD FOR CHILDREN  
& ADULTS

## TULSI



HELPS ADAPT TO  
STRESS

HELPS IMMUNE  
SYSTEM

SACRED PLANT FOR  
MANY PEOPLE

## ARNICA



USE ON SKIN

HEALS BRUISES AND  
SPRAINS

GOOD FOR ARTHRITIS  
AND JOINT PAIN

# CALENDULA HEALING CREAM

## GOOD FOR:

- ANTIBACTERIAL AND ANTIMICROBIAL
- CUTS, BURNS, SCRAPES, RASHES
- SKIN IRRITATIONS ON BABIES & KIDS



1 CUP



OLIVE OIL



1/2 CUP



DRY CALENDULA  
FLOWERS

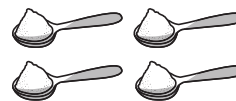
## STEP 1: MAKE A MEDICINAL OIL

1. PUT OLIVE OIL & DRY CALENDULA FLOWERS IN A GLASS JAR. THE OIL SHOULD BE COVERING ALL THE DRY FLOWERS.
2. SET UP A DOUBLE BOILER TO HEAT THE OIL VERY SLOWLY: FILL A SMALL POT WITH WATER, PLACE THE GLASS JAR INSIDE THE POT. MAKE SURE THE WATER DOES NOT GET INTO THE JAR.
3. HEAT THE OIL IN THE DOUBLE BOILER ON VERY, VERY LOW HEAT. IT IS VERY IMPORTANT TO NOT BURN THE OIL. USE THE LOWEST HEAT POSSIBLE AND LEAVE IT ON FOR 1-2 HOURS.
4. USE A METAL STRAINER OR CLOTH FABRIC TO REMOVE THE DRY FLOWERS. NOW YOU HAVE A CALENDULA OIL TO USE ON YOUR SKIN!

## STEP 2: MAKE A CREAM



CALENDULA OIL



4 TABLESPOONS  
BEESWAX

1. AGAIN, SET UP A DOUBLE BOILER TO HEAT THE CALENDULA OIL VERY, VERY LOW HEAT.
2. ADD 4 TABLESPOONS OF BEESWAX AND STIR UNTIL THE BEESWAX MELTS.
3. POUR THE OIL & BEESWAX INTO SMALL GLASS OR METAL CONTAINERS AND LEAVE IT TO COOL AND HARDEN.





# MUSCLE RUB SALVE

## GOOD FOR:

MUSCLE PAIN & TENSION  
ARTHRITIS, JOINT & SCIATICA NERVE PAIN  
BRUISES & SPRAINS



1 CUP



OLIVE OIL  
OR  
COCONUT OIL



1/2 CUP



MEDICINAL  
PLANTS  
FRESH OR DRY



CAYENNE  
PEPPER



ST JOHNS  
WORT



ARNICA



GINGER



1 TABLESPOON  
BEESWAX



1 TABLESPOON  
SHEA BUTTER

## STEPS

COMBINE OIL & PLANTS IN A  
GLASS JAR.

- *FOR A QUICK INFUSION:*  
HEAT OIL IN A DOUBLE  
BOILER ON VERY, VERY LOW  
HEAT FOR 1 HOUR.
- *FOR A SLOW INFUSION:*  
LEAVE THE OIL & PLANTS IN  
THE JAR FOR 4 WEEKS.

STRAIN THE OIL TO REMOVE  
PLANTS.

COMBINE OIL, BEESWAX AND  
SHEA IN A CLEAN GLASS JAR.

PLACE JAR IN A DOUBLE BOILER  
TO SLOWLY HEAT ON LOW  
TEMPERATURE UNTIL MELTED.

POUR INTO SMALLER TINS AND  
WAIT UNTIL THE SALVE COOLS.

## HOW TO USE:

- RUB INTO SKIN.
- AVOID USING NEAR EYES,  
NOSE, OR ON SENSITIVE BODY  
PARTS.
- ADD ESSENTIAL OILS FOR  
EXTRA HEALING POWER  
(ROSEMARY, PEPPERMINT,  
EUCALYPTUS, LAVENDER)