

2023 Fungicide Spray Guide for Tomato in North Carolina

NC STATE

EXTENSION

Inga Meadows, Department of Entomology & Plant Pathology

The following suggested weekly spray programs (Table 1) are designed to manage the primary foliar and/or fruit diseases (early blight, late blight, bacterial spot, Septoria leaf spot, and gray mold [Fig. 1]) on fresh-market tomato in NC and account for the label restrictions of different products. There are many products on the market that are also effective at controlling some of these diseases (Table 2). Be sure to check current labels as product restrictions can change.

In weeks 1-8, select a program based on the products available. In week 9 to the end of harvest, if late blight is a consistent threat (typically in western NC), then consider one of the late blight programs. If late blight is NOT a threat, continue the early blight program; however, if Aprovia Top or Luna Tranquility were used in Weeks 1-8, then season limits will have been reached and discontinue use of these products.

Table 1. Suggested weekly spray programs for fresh-market tomato production.

Week	Program 1	Program 2	Program 3	Program 4*
Before harvest:				
1	mancozeb (M) + copper (M) + Actigard (21)			
2	mancozeb (M) + copper (M) + Actigard (21)			
3	mancozeb (M) + copper (M) + Actigard (21) + (pick one program & stick with it to meet label restrictions)			
	Inspire Super (3+9)	Priaxor (7+11)	Aprovia Top (7+3) OR Luna Tranquility (7+9) OR Miravis Prime (7+12)	strobilurin* (11)
4	mancozeb (M) + copper (M) + Actigard (21)			
5	mancozeb (M) + copper (M) + Actigard (21) + (insert Program product)			
	Fontelis (7) OR Endura (7)	mancozeb (M) + Switch (9+12)	Aprovia Top (7+3) OR Luna Tranquility (7+9)	Fontelis (7) OR Endura (7)
6	mancozeb (M) + copper (M) + Actigard (21)			
7**	mancozeb (M) + copper (M) + Actigard (21) + (insert Program product)			
	Inspire Super (3+9)	Priaxor (7+11)	Aprovia Top (7+3) OR Luna Tranquility (7+9) OR Miravis Prime (7+12)	strobilurin* (11)
8**	mancozeb (M) + copper (M) + Actigard (21)			
During harvest: If late blight is a threat, use late blight products; else, use early blight products				
9	chlorothalonil (M) + (insert Program product)			
	Fontelis (7) OR Endura (7)	Switch (9+12)	Aprovia Top (7+3) OR Luna Tranquility (7+9)	Fontelis (7) OR Endura (7)
10	Presidio (43) OR Ranman (21) OR Orondis Ultra (49+40) OR Zampro (45+40) OR Revus Top (40+3)			
11***	Fontelis (7) OR Endura (7) OR Switch (9+12) + chlorothalonil (M)			
12***	Presidio (43) OR Ranman (21) OR Orondis Ultra (49+40) OR Zampro (45+40) OR Revus Top (40+3)			
13***	Fontelis (7) OR Endura (7) OR Switch (9+12) + chlorothalonil (M)			
14***	finish with chlorothalonil (M)			

Color denotes disease controlled: Red=Early blight & Septoria leaf spot; Blue=bacterial spot, speck; Green=Early blight & bacterial spot; Purple=late blight; Orange=early blight & late blight

Actigard applications should be applied at LOWEST rate to reduce the risk of plant stunting.

Regalia, Lifegard, and Serenade have some efficacy against bacterial spot.

*Resistance to strobilurins is known to occur in the early blight pathogen in NC; if resistance is suspected, use alternate program.

**For late season plantings: If late blight is in the area, consider chlorothalonil for late blight control beginning Week 7 or 8.

***Continue early blight program or use Revus Top if early blight pressure is high for weeks 11-14.

Note: Recommendations for the use of agricultural chemicals are included here as a convenience to the reader. The use of brand names and mention or listing of commercial products does not imply endorsement by North Carolina State University nor discrimination against similar products or services not mentioned. Individuals who use agricultural chemicals are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Examine a current product label before applying any chemical. For assistance, contact your county North Carolina Cooperative Extension Service agent.

Table 2. Selected products labeled for use on tomato in NC. Active ingredient, fungicide group (FRAC), pre-harvest interval (PHI), and product name are listed. **Always check the most current label before use as labels can change.**

Common name (active ingredient)	FRAC*	PHI (days)	Product name
fixed copper	M01	Varies; check label	(various)
acibenzolar-S-methyl	21	14	Actigard 50WG
mancozeb	M03	5	(various)
<i>Bacillus subtilis</i> strain QST 713 (OMRI)	44	0	Serenade Opti, Serenade ASO
<i>Bacillus mycooides</i> isolate J (OMRI)	P6	0	Lifegard WG
<i>Reynoutria sachalinensis</i> (OMRI)	P5	0	Regalia
difenoconazole + cyprodinil	3+9	0	Inspire Super (GM)
difenoconazole + benzovindiflupyr	3+7	0	Aprovia Top
boscalid	7	0	Endura (GM)
mefentrifluconazole	3	0	Cevya
penthiopyrad	7	0	Fontelis
fluopyram + pyrimethanil	7+9	1	Luna Tranquility (GM)
pydiflumetofen + fludioxonil	7+12	0	Miravis Prime
pyrimethanil	9	1	Scala
cyprodinil + fludioxonil	9+12	0	Switch
strobilurin (azoxystrobin)	11	0	Quadris
strobilurin (pyraclostrobin)	11	0	Cabrio EG
strobilurin (azoxystrobin) + difenoconazole	11+3	0	Quadris Top
strobilurin (pyraclostrobin) + fluxapyroxad	11+7	7	Priaxor (GM)
strobilurin (trifloxystrobin) + fluopyram	11+7	3	Luna Sensation (GM)
azoxystrobin + chlorothalonil	11+M05	3	Quadris Opti
famoxadone + cymoxanil	11+27	3	Tanos
mandipropamid + difenoconazole	40+3	1	Revus Top
chlorothalonil	M05	0	(various)
chlorothalonil + cymoxanil	M05+27	3	Ariston
chlorothalonil + potassium phosphate	M05+33	0	Catamaran
cyazofamid	21	0	Ranman
propamocarb (S)	28	5	Previcur Flex
fluopicolide (S)	43	2	Presidio
ametoctradin + dimethomorph	45+40	4	Zampro
oxathiapiprolin (S) + mandipropamid	49+40	1	Orondis Ultra
oxathiapiprolin (S) + chlorothalonil	49+M05	0	Orondis Opti

*FRAC=Fungicide Resistance Action Committee code; Products with the same FRAC number do not count as a rotation partner (OMRI) OMRI Approved product; (GM) This product also controls gray mold.

(S) This product has systemic activity; it can be used after plants are infected with late blight to slow disease progression.



Fig. 1. Common tomato diseases in North Carolina: (left to right) late blight on underside of tomato leaf, early blight on tomato leaf, bacterial spot on fruit and stems, and Septoria leaf spot on tomato leaf.

The research behind this document was funded in part by the North Carolina Tomato Growers and the North Carolina Vegetable Growers Associations.



Note: Recommendations for the use of agricultural chemicals are included here as a convenience to the reader. The use of brand names and mention or listing of commercial products does not imply endorsement by North Carolina State University nor discrimination against similar products or services not mentioned. Individuals who use agricultural chemicals are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Examine a current product label before applying any chemical. For assistance, contact your county North Carolina Cooperative Extension Service agent.