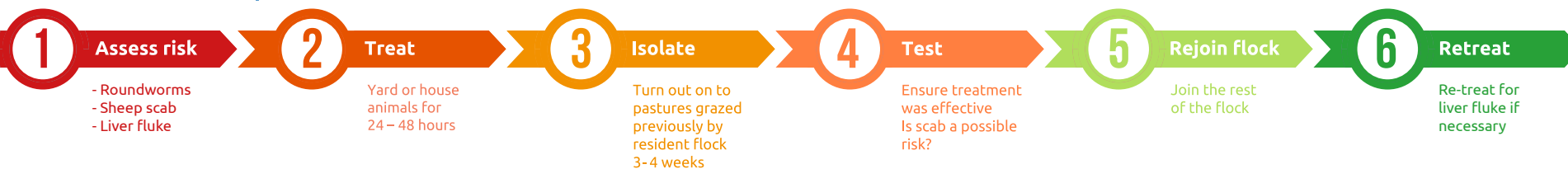





Roundworm. Sheep scab. Fluke.

Effective quarantine and treatments



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STEP	TIMELINE	ROUNDWORM 	SHEEP SCAB 	LIVER FLUKE* 
1 Assess risk	At purchase (day 0)	Assume ALL animals are carrying resistant roundworm infections.	Assess for Sheep scab risk High* or Low**.	Assess Liver fluke risk. See second page for guidelines on fluke risk assessment.
2 Treat	Sheep arrive on farm (day 0-2)	ALL incoming sheep for 24-48 hours and administer quarantine treatment. Treat for resistant roundworms		
			High scab risk: Isolate and test to inform the need for treatment OR treat immediately and isolate Low scab risk: Isolate and test to inform the need for treatment (step 4)	Assume liver fluke are triclabendazole resistant.
3 Isolate	Days 2 – 28	Keep ALL incoming sheep isolated from the rest of the flock. Turn out separately onto pastures grazed previously by resident flock (where available) for 3 -4 weeks. (Days 3-28)		
4 Test <small>Need for scab treatment. Have anthelmintics worked.</small>	Days 7 - 21	Test anthelmintics have worked. Faecal Egg Counts 14 days after	Test for exposure to sheep scab mites (ELISA Test) 14 days after sheep arrive on farm. Sheep scab ELISA Test (14 days post purchase). Treatment if ELISA Test is positive.	Liver fluke egg count (21 days post treatment) Coproantigen ELISA.
5 Rejoin flock	After 21-28 days	Animals can join home flock.		
6 Retreat?	Days 35 - 43	Repeat treatment if liver fluke risk identified.		

* High risk: Untreated animals from a farm with a known risk e.g. common grazing or from a farm/mart in a hotspot area (see manual for more details). If in doubt choose the high risk category.

** Low risk: Sheep where vendor states they have been treated or where animals have been away grazing and not in contact with other sheep.

Treatment options

(all options assume that anthelmintic resistant nematodes are present and treatment is included):



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Risk assessment:

Low scab risk / roundworm



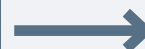
Administer on arrival

	Gold	Gold	Silver	Silver	Bronze	Bronze
4-AD						
5-SI						
Mox (oral drench)						



Test after 14 days for sheep scab

Test: Skin scrape or ELISA



Test negative for scab
(No further treatment required)

Test positive for scab

Active Ingredient	Method of application
Diazinon	Plunge dip
Ivermectin	Injection (2 doses required)
Doramectin	Injection
Moxidectin 1%	Injection (2 doses required)
Moxidectin 2%	Injection

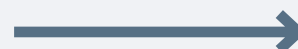
Risk assessment:

High scab risk



Administer on arrival

	Gold	Gold	Silver	Silver	Silver	Silver	Bronze	Bronze
4-AD								
5-SI								
Mox (oral drench)								
Mox (injection)								
OP dip								
Doramectin (injection)**								



Test negative for scab
(No further treatment required)

Test positive for scab

Active Ingredient	Method of application
Diazinon	Plunge dip
Ivermectin	Injection (2 doses required)
Doramectin	Injection
Moxidectin 1%	Injection (2 doses required)
Moxidectin 2%	Injection

**Turn to pasture not grazed by sheep for at least 15 days after treatment

Risk assessment:

High liver fluke risk* (in addition to the roundworm and scab choices above)



Administer on arrival

Repeat treatment is recommended**

Closantel	6 weeks later
Nitroxynil	7 weeks later
Triclabendazole*	Closantel or nitroxynil 7 weeks later

Risk assessment for fluke:

Risk from liver fluke (and drug resistance) in bought-in sheep should be considered where:

1. Animals are being purchased from a farm where liver fluke has been identified.
2. Animals are being purchased from a farm with unknown fluke infection status, in particular:
 - a. Farms with, or close to wetland habitats and/or farms with limited drainage
 - b. Farms in areas with high annual rainfall
3. If buying-in animals in autumn/early winter, animals could be at risk of acute disease.

* Liver fluke advice is currently tailored for liver fluke and not rumen fluke, only consider rumen fluke treatments if you see clinical signs, consult your vet.

** Repeat treatment is recommended even if 21d FEC/Coproantigen is negative.

My Quarantine Plan



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Month _____

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Example 1

High scab risk / low liver fluke risk - scan ELISA negative.



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MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
1	2	3	<p>100 Ewe lambs bought at market. Decide to test for sheep scab rather than treat immediately.</p> <p>Housed on arrival for 48 hours</p>	<p>5</p> <p>Treated for Roundworms Group 4- AD + mox used (silver option)</p>	6	<p>7</p> <p>Turn out to Church Field where sheep have grazed until recently but now isolated from the rest of the flock.</p>
8	9	10	11	12	13	14
15	16	17	18	<p>19</p> <p>Take mob FEC sample to test the wormers have worked. Take blood samples for scab ELISA test</p>	20	21
22	23	<p>24</p> <p>Results of scab test are negative.</p>	25	26	27	<p>28</p> <p>Ewe lambs have completed 3 weeks in isolation and can now move to join the rest of the flock if required.</p>
29	30	31				

Example 1

High scab risk / low liver fluke risk - scan ELISA negative.



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MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
1	2	3	4 100 Ewe lambs bought at market. Decide to test for sheep scab rather than treat immediately.	5 Treated for Roundworms Group 4- AD + mox used (silver option)	6	7 Turn out to Church Field where sheep have grazed until recently but now isolated from the rest of the flock.
<div> <div>1</div> <div>2</div> <div>Housed on arrival for 48 hours</div> <div>3</div> </div>						
8	9	10	11	12	13	14
15	16	17	18	19 Take mob FEC sample to test the wormers have worked. Take blood samples for scab ELISA test	20	21
<div> <div>4</div> </div>						
22	23	24 Results of scab test are negative.	25	26	27	28 Ewe lambs have completed 3 weeks in isolation and can now move to join the rest of the flock if required.
<div> <div>5</div> </div>						
29	30	31				

Example 2

Low scab risk / low liver fluke risk - scan ELISA negative.



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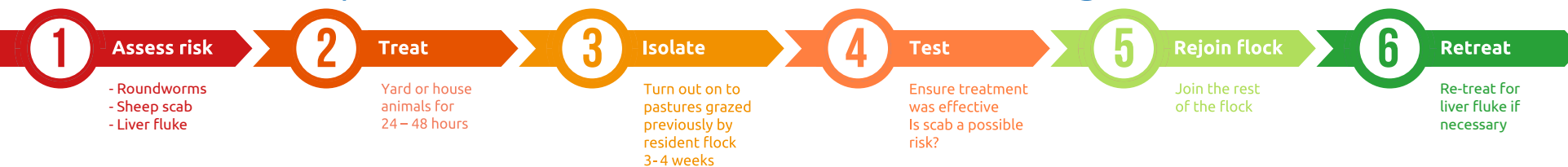
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
1	2	3	4 5 shearling rams bought direct from a farm. Scab risk considered low	5 Treated for Roundworms (Group 4-AD + 5 SI used (gold)	6	7 Turn out to small paddock next to sheds where sheep have grazed until recently but now isolated from the rest of the flock.
Housed on arrival for 48 hours						
8	9	10	11	12	13	14
15	16	17	18	19 Take mob FEC sample to test the wormers have worked effectively and blood for the ELISA test for sheep scab.	20 FEC test shows no worm eggs so treatment was effective.	21
22	23	24 Results of scab test are negative.	25	26	27	28 Rams are now clear and can join others and/or go out to work with the ewes.
29	30	31				

Example 2

Low scab risk / low liver fluke risk - scan ELISA negative.



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MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
1	2	3	4 5 shearling rams bought direct from a farm. Scab risk considered low	5 Treated for Roundworms (Group 4-AD + 5 SI used (gold))	6	7 Turn out to small paddock next to sheds where sheep have grazed until recently but now isolated from the rest of the flock.
			1	2	3	
8	9	10	11	12	13	14
15	16	17	18	19 Take mob FEC sample to test the wormers have worked effectively and blood for the ELISA test for sheep scab.	20 FEC test shows no worm eggs so treatment was effective.	21
22	23	24 Results of scab test are negative.	25	26	27	28 Rams are now clear and can join others and/or go out to work with the ewes.
29	30	31				

Example 3

Low scab risk / high liver fluke risk



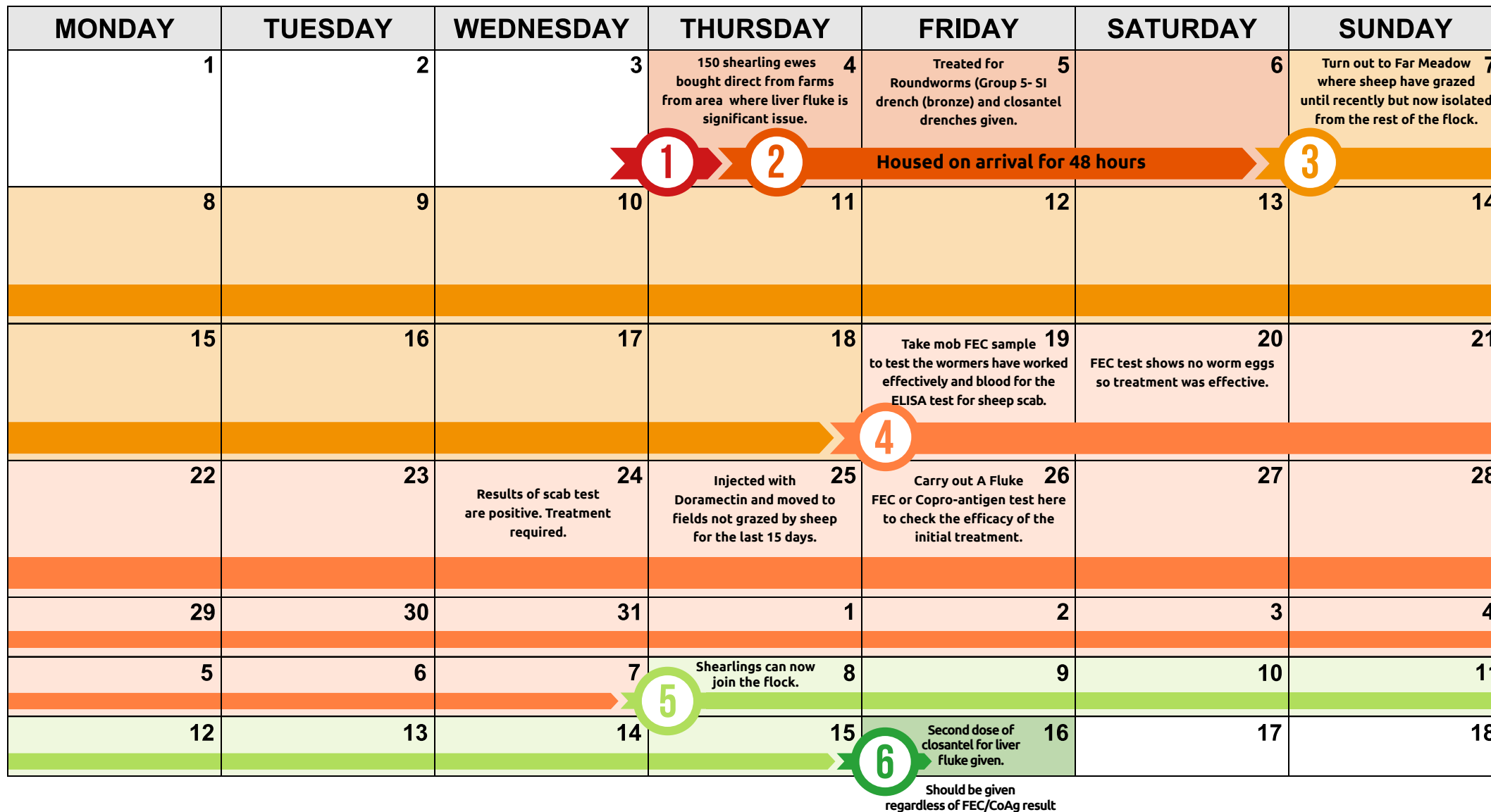
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MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
1	2	3	4 150 shearling ewes bought direct from farms from area where liver fluke is significant issue.	5 Treated for Roundworms (Group 5- SI drench (bronze) and closantel drenches given.	6	7 Turn out to Far Meadow where sheep have grazed until recently but now isolated from the rest of the flock.
Housed on arrival for 48 hours						
8	9	10	11	12	13	14
15	16	17	18	19 Take mob FEC sample to test the wormers have worked effectively and blood for the ELISA test for sheep scab.	20 FEC test shows no worm eggs so treatment was effective.	21
22	23	24 Results of scab test are positive. Treatment required.	25 Injected with Doramectin and moved to fields not grazed by sheep for the last 15 days.	26 Carry out A Fluke FEC or Copro-antigen test here to check the efficacy of the initial treatment.	27	28
29	30	31	1	2	3	4
5	6	7	8 Shearlings can now join the flock.	9	10	11
12	13	14	15	16 Second dose of closantel for liver fluke given.	17	18

Should be given regardless of FEC/CoAg result

Low scab risk / high liver fluke risk



Example 4

High scab risk / high liver fluke risk



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MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
1	2	3	4 200 ewe lambs bought from market in Wales where risk of scab and liver fluke is very high.	5 Treated for Roundworms (Group 4-AD drench (bronze) and triclabendazole drenches given.	6	7 Sheep are dipped out of the shed and turned out to Long Field where sheep have grazed until recently but is now isolated from the rest of the flock and not known to have any liver fluke.
Housed on arrival for 48 hours						
8	9	10	11	12	13	14
15	16	17	18	19 Take mob FEC sample to test the wormers have worked effectively	20 FEC test shows no worm eggs so treatment was effective.	21
22	23	24	25	26 Post-treatment WEC/CoAg test for fluke to check for first treatment efficacy.	27	28 Ewe lambs are now able to move.
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16 Second dose of closantel for liver fluke given.	17	18

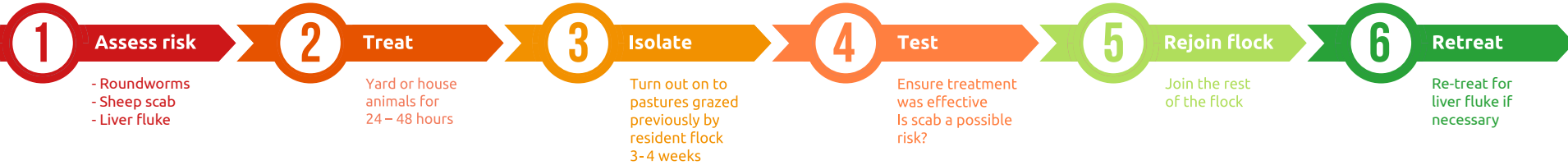
Should be given regardless of Egg count/CoAg result.

Example 4

High scab risk / high liver fluke risk



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MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
1	2	3	4 200 ewe lambs bought from market in Wales where risk of scab and liver fluke is very high.	5 Treated for Roundworms (Group 4-AD drench (bronze) and triclabendazole drenches given.	6	7 Sheep are dipped out of the shed and turned out to Long Field where sheep have grazed until recently but is now isolated from the rest of the Flock and not known to have any liver fluke.
			1	2	3	
8	9	10	11	12	13	14
15	16	17	18	19 Take mob FEC sample to test the wormers have worked effectively.	20 FEC test shows no worm eggs so treatment was effective.	21
			4			
22	23	24	25	26 Post-treatment WEC/CoAg test for fluke to check for first treatment efficacy.	27	28 Ewe lambs are now able to move.
				5		
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16 Second liver Fluke dose - closantel given.	17	18

6 Should be given regardless of Egg count/CoAg result.