

# Management Guide for *Trifolium subterraneum* (subterranean clover)



<b>Species Name</b>	<i>Trifolium subterraneum</i> (TRSU3) <sup>1, 8</sup>		<b>Common Name</b>	Subterranean clover
<b>Family:</b> Fabaceae	<b>Synonyms:</b>	Common name <sup>1, 2, 4</sup> - sub clover, burrowing clover, subterranean trefoil		
<b>Form:</b> herbaceous groundcover		Former species name <sup>3, 4</sup> - <i>S. brachycalycinum</i> , <i>Calycomorphum subterraneum</i> .		
<b>Habitat:</b> <sup>3, 4, 12</sup> Open areas, fields and grasslands, heathland, ranges from tropical to cool temperate climates especially with wet and mild winters.				
<b>Occurrence:</b> <sup>1, 3, 5</sup> United States western coast and south east states, as well as New Jersey and Massachusetts. Also New Zealand and Australia.		<b>Native range:</b> <sup>2, 3, 5</sup> Northern Africa and western islands, western and southern Europe, the middle-east, and western Asia.		
<b>Flowering time</b> <sup>6, 16, personal observation</sup> - January to May		<b>Weed class:</b> OR- N/A, WA- N/A, BC- N/A		
<b>Weed ID:</b> 4, 14, 15, 16 Annual prostrate groundcover legume, 10-15 cm high, hairy stems 1-2 m long and not rooting. Leaves are petiolate, compound alternate usually with notched tips, trifoliate cordate leaflets with markings differing by cultivar & wide stipules are membranous to leafy with green to red. Flowers are white to cream, clusters in small heads of 4-8 flowers. Fruits are burrs that form by flower head folding inside out to protect seeds and develop underground as peduncle bends and buries them post-fertilization, looking like bristly baskets, germinating in the fall. Taproots with many secondary roots & may have nodules.				
<b>Look-a-likes:</b> <i>see photos below</i> <i>Trifolium repens</i> (white clover)- non-native <b>Weed distinction</b> <i>Trifolium repens</i> - perennial, oblong to wedge-shaped leaflets, spherical flowers have many more florets (40-100) than <i>T. subterraneum</i> and are on long peduncles, stipules white-membranous. <sup>13, 14, 15</sup>				
<b>Ecological Impacts:</b> <sup>4, 7, 8, 12</sup> Nitrogen-fixing trait can alter soil chemistry and encourage more weeds, vigorous seedling growth in winter enables high spring competition with natives.				

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### Control Methods

#### Large Scale:

#### Chemical

“Subterranean clover herbicide tolerance varies widely with cultivar and growth stage, but it is generally easier to kill after it has set some seed”.<sup>8</sup>

- **Glyphosate** (recommended at 1% by Australian Flora Base<sup>11</sup>). May be tolerant of glyphosate.<sup>15</sup>

#### Timing

- Spray before flowering (early winter).<sup>11</sup>

- **Lotrel** (3 ml/10L recommended by Australian Flora Base)<sup>11, 15</sup>.

#### Timing

- Spray after flowering if earlier with glyphosate isn't possible, up to the 6 leaf stage of growth.<sup>11</sup>
- Spray in early winter for reasonably selective control.<sup>15</sup>

- **Tordon** (10 ml/10L recommended by HerbiGuide, Australia) gives excellent control of present plants and residual control for new seedlings<sup>15</sup>.

#### Timing

- Spray in early winter.<sup>15</sup>

- **Metsulfuron, Picloram, Rimsulfuron, and Triclopyr** give >95% control for similar *T. hirtum*.<sup>9</sup>

**Tilling**- may kill clover before mid-bloom. <sup>8</sup> Plowing between December & March may increase clover.<sup>10</sup>

**Burning**- fires poorly control annual clovers with most studies assessing subterranean clover's use as fire breaks in Europe. Related annual *T. hirtum* is known to be poorly controlled with burns.<sup>9</sup>

- Flame weeding in winter until well shriveled has worked well for small patches for South Sound Prairie staff. Multiple treatments is required and be sure to get the edges of patches.

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#### Small Scale Control Method:

- **Hand-pulling**, digging and grubbing can be fairly effective before seed set<sup>7</sup>, as seen for *T. hirtum* (50-80 % control) but plants may root from nodes of remaining stems.<sup>9</sup> If seeds are on the plants, do not compost as seeds will survive.<sup>7</sup>

#### Timing

- Winter, before blooming (repeat for 5 years).<sup>15</sup>

#### Unsuccessful control methods:

- **Grazing/Mowing** - plants are grown for forage and highly resilient and too prostrate to mow.

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### References:

1. <https://plants.usda.gov/core/profile?symbol=trsu3>
2. [https://keyserver.lucidcentral.org/weeds/data/media/Html/trifolium\\_subterraneum.htm](https://keyserver.lucidcentral.org/weeds/data/media/Html/trifolium_subterraneum.htm)
3. <https://www.iucnredlist.org/species/176372/20157951#taxonomy>
4. <https://www.feedipedia.org/node/243>
5. <https://gobotany.newenglandwild.org/species/trifolium/subterraneum/>
6. [https://www.calflora.org/cgi-bin/species\\_query.cgi?where-taxon=Trifolium+subterraneum](https://www.calflora.org/cgi-bin/species_query.cgi?where-taxon=Trifolium+subterraneum)
7. Garry Oak Ecosystems Recovery Team. "Trifolium subterraneum- subterranean clover." *Invasive Species in Garry Oak and Associated Ecosystems in British Columbia*. (2011). [www.goert.ca/documents/Trifolium-subterraneum.pdf](http://www.goert.ca/documents/Trifolium-subterraneum.pdf)
8. Friddle, M. "Plant Guide: Subterranean Clover (*Trifolium subterraneum*)."  
*USDA- Natural Resources Conservation Service*. (2018). Corvallis Plant Materials Center, Corvallis, OR.  
[https://www.nrcs.usda.gov/Internet/FSE\\_PLANTMATERIALS/publications/orpmcpg13327.pdf](https://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/orpmcpg13327.pdf)
9. DiTomaso, J.M., Kyser, G.B., et al. "Weed Control in Natural Areas in the Western United States- Treatment Options."  
*Weed Research and Information Center*. (2013). University of California, 544 pp.  
[https://wric.ucdavis.edu/information/natural%20areas/wr\\_T/Trifolium\\_hirtum.pdf](https://wric.ucdavis.edu/information/natural%20areas/wr_T/Trifolium_hirtum.pdf)
10. Dell, Bernard., Hopkins, A.J.M., Lamont, B.B. "Resilience in Mediterranean-type ecosystems." Dr. W. Junk Publishers Group. (1986). Dordrecht.
11. <https://florabase.dpaw.wa.gov.au/browse/profile/4313>
12. <http://www.brc.ac.uk/plantatlas/index.php?q=node/3662>
13. [https://plants.usda.gov/plantguide/pdf/pg\\_trre3.pdf](https://plants.usda.gov/plantguide/pdf/pg_trre3.pdf)
14. <https://forages.oregonstate.edu/matchclover/species>
15. [http://www.herbiguide.com.au/Descriptions/hg\\_Subterranean\\_Clover.htm](http://www.herbiguide.com.au/Descriptions/hg_Subterranean_Clover.htm)
16. [http://ucjeps.berkeley.edu/eflora/eflora\\_display.php?tid=47174](http://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=47174)

# Management Guide for *Trifolium subterraneum*

Photos:



habit



flower



leaf



fruit

# Management Guide for *Trifolium subterraneum*

## Look-a-likes

*Trifolium repens*— non-native



flower



habit



fruit

