This invention relates to a pecticidal composition against ticks, in particular on cattle, having flumethrin and flu-azuron as its active ingredients. In addition to the above active ingredients the composition may include N-methylpyrrolidone, dipropylene glycol monomethyl ether and, optionally, a dye as a carrier and adjuvants.
PESTICIDAL COMPOSITION

FIELD OF THE INVENTION
This invention relates to a pesticidal composition.

BACKGROUND TO THE INVENTION
Many compounds are available for pesticidal applications in animals. In many instances, especially for the control of ticks, it is desirable to have a pour on composition. It is desirable for such compositions to have good knockdown and extended persistency. At present, however, most available compositions have one or the other of these qualities, seldom both.

OBJECT OF THE INVENTION
It is an object of this invention to provide a pesticidal pour on composition which will alleviate the abovementioned problem.

SUMMARY OF THE INVENTION
In accordance with this invention there is provided a pesticidal pour on composition characterised in that the active ingredients include flumethrin and fluazuron.

Further features of the invention provide for the composition to contain 9 to 11 g/l flumethrin and 20 to 40 g/l fluazuron, preferably 10 g/l flumethrin and 25 g/l fluazuron.

Still further features of the invention provide for the composition to include a carrier and adjuvants; for these to possibly include N-methylpyrrolidone, dipropylene glycol monomethyl ether and optionally a dye; and for there to be 196 to 241 g/l, preferably 210 to 230 g/l, particularly preferably 215 to 225, in particular about 218.8 g/l N-methylpyrrolidone; 649 to 794 g/l, preferably 670 to 771 g/l, particularly preferably 700 to 740 g/l, in particular about 721 g/l dipropylene glycol monomethyl ether and, optionally, 0.09 to 0.11 g/l, in particular 0.10 g/l patent blue dye

The following example illustrates one embodiment of a pesticidal pour on composition made in accordance with the invention.
EXAMPLE 1

A pesticidal pour on composition is prepared by admixing the following compounds:

<table>
<thead>
<tr>
<th>Compound</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flumethrin*</td>
<td>10.0 g/l</td>
</tr>
<tr>
<td>Fluazuron’</td>
<td>25.0 g/l</td>
</tr>
<tr>
<td>N methylpyrrolidone</td>
<td>218.76 g/l</td>
</tr>
<tr>
<td>Dipropylene glycol monomethyl ether</td>
<td>721.48 g/l</td>
</tr>
<tr>
<td>Patent blue dye</td>
<td>0.1 g/l</td>
</tr>
</tbody>
</table>

*quantities assuming 100% potency of Flumethrin and Fluazuron

Where potency adjustment is necessary the dipropylene glycol monomethyl ether is utilised to compensate for volumetric changes. The dipropylene glycol monomethyl ether used was that sold under the trade name "Dowanol DPM". A dye is optional and where it is not used the dipropylene glycol monomethyl ether is made up to volume.

The composition so obtained can be used as a pour on product against ticks on animals, in particular cattle. A preferred application dose, in particular for cattle, is 1 ml/10 kg which equates to flumethrin 0.9 to 1.1 mg/kg, preferably 1 mg/kg; fluazuron 2 to 4 mg/kg, preferably 2.5 mg/kg. Other application doses may be suitable depending on the situation in the respective case. It has been found that the composition provides a comparable to improved tick knockdown and persistency than flumethrin by itself and longer persistency than fluazuron by itself against *Rhipicephalus (Boophilus) decoloratus* blue ticks. The increased persistency was found to be at least 35 days against pyrethroid resistant *Rhipicephalus (Boophilus) decoloratus* blue ticks, and at least 60 days against susceptible *Rhipicephalus (Boophilus) decoloratus* blue ticks, which was longer than the 48 days demonstrated against susceptible ticks for fluazuron when used alone. The composition is thus superior to either of these two known products used individually indicating an unexpected synergistic effect, as the dose rate of the invention represents a 16.7 % decrease in the application rate of fluazuron. This mechanism of this synergistic effect is not yet understood.

It will be appreciated that many other embodiments of a pesticidal composition exist which fall within the scope of the invention, particularly as regards the concentration of the active compounds and the excipients used. Any suitable carriers and adjuvants can be used in suitable concentrations.
CLAIMS

1. A pesticidal pour on composition characterised in that the active ingredients include flumethrin and fluazuron.

2. A pesticidal pour on composition as claimed in claim 1 characterised in that the composition contains 9 to 11 g/l flumethrin and 20 to 40 g/l fluazuron.

3. A pesticidal pour on composition as claimed in claim 2 characterised in that the composition contains 10 g/l flumethrin and 25 g/l fluazuron.

4. A pesticidal pour on composition as claimed in any one of the preceding claims characterised in that the composition also includes a carrier and/or adjuvants.

5. A pesticidal pour on composition as claimed in claim 4 characterised in that the carrier and/or adjuvants are selected from the group consisting of: N-methylpyrrolidone, dipropylene glycol monomethyl ether and a dye.

6. A pesticidal pour on composition as claimed in claim 5 characterised in that it contains 196 to 241 g/l N-methylpyrrolidone.

7. A pesticidal pour on composition as claimed in claim 5 or claim 6 characterised in that it contains 649 to 794 g/l dipropylene glycol monomethyl ether.

8. A pesticidal pour on composition as claimed in one of claims 5 to 7 characterised in that it contains 0.09 to 0.11 g/l patent blue dye.

9. A pesticidal pour on composition as claimed in claims 1 to 8 that produces, comparable to currently available similar compositions, improved knockdown and improved persistency against *Rhipicephalus (Boophilus) decoloratus* blue ticks on cattle.