CONTROVERSIAL SUBJECT

Ever since their arrival in this industry, 'biologicals' have been a controversial subject. Around about four years ago, biological products were going to be the next big thing for turf managers and the market was flooded with products claiming a variety of benefits from improved turf growth and thatch breakdown to disease reduction...some were so confident to make the statement 'no disease' or your money back! Unfortunately the results were not quite as spectacular as the claims, leading to a lot of scepticism in the turf world.

We've had articles flying back and forward in the industry trade magazines for and against, turf managers who swear by them, others who haven't seen anything from them and many others who haven't yet tried one. And it hasn't helped that the experts can't seem to agree either. There has been a number of industry conferences and seminars presenting pro's and cons through both British and American research, but in most cases viewers came away with the eternal question lingering 'So will they work or won't they?'

STRI RESEARCH

Over the last few years, the STRI have performed some field trials on both soil and USGA rootzones using a variety of microbial products with mixed results - some positive, some with a negligible effect and others with no benefit seen at all. This research has been carried out both in-house, funded by STRI/R&A and work undertaken for commercial companies. Clearly, the latter is sensitive information and even the STRI agronomists will not be informed of the results, unless the company themselves release the data. Therefore, the STRI advice on these products to date has had to be one of caution, as achieving successful results can be elusive and therefore could be an expensive learning curve for a Club. The reasons for the frustratingly varied results are numerous, some of which I hope to cover in (my future) this article.

HAVE YOUR SAY...

In the meantime, the STRI would like YOUR help on this subject. We are conducting a UK wide survey on use of biological products to study the exposure of these products, how, why and where they are used, what percentage of users have had positive results and most importantly what is the secret to their success?! I will discuss the findings in future articles and the results will be made publicly available.

BIOLOGICAL PRODUCT USE

QUESTIONNAIRE

In an effort to gain a greater understanding of the use of biological products in the turf grass industry, STRI courteously request that you complete the following questionnaire. You are not required to give your name.

Please note that under the Data Protection Act, your personal answers will be treated in the strictest of confidence and will be only used in a general way to analyse the overall findings of this survey. Thank you for your co-operation in completing this exercise.

Please tick where appropriate

BACKGROUND INFORMATION

1. Your name (optional)

2. Name of Club (optional)

3. Type of course/club:
   - Golf heathland
   - Golf parkland
   - Golf links
   - Golf seaside
   - Golf upland/moorland
   - Winter sports pitches
   - Cricket
   - Tennis
   - Bowls
   - Other - give details below

PRODUCT USAGE

4. Have you ever tried a 'biological' product?
   - Yes - Go to question 6
   - No - Go to question 5

5. If NO, please identify why you have not used a 'biological' product. Rank in order up to 3 of the below, 1 being the main reason why you have not used a product.
   - Don't know of any product
   - Unproven results
   - No need to use one
   - Too expensive
   - Other - give details below
AIMS AND PRODUCT DESCRIPTION

6. If **YES**, what were your aim(s) for using it?
   Rank in order up to 3 of the below, 1 being your main aim.
   - Biologically activate new sandy rootzone
   - Reduce thatch
   - Reduce dry patch
   - Reduce anaerobic black layer
   - Increase growth + density
   - Increase desirable grasses
   - Increase rooting
   - Generally reduce disease + fungicide use
   - To actively control a disease outbreak instead of using a chemical fungicide

7. Please identify the product(s) used and their contents (continue on separate sheet if necessary):
   If more than 1, please list each on a separate line. If you are unsure of the content, put a '?' in the appropriate column. Organic content refers to seaweed, vegetable/animal composted waste, etc.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Liquid or Granular?</th>
<th>Organic content?</th>
<th>Nitrogen content?</th>
<th>Bacteria?</th>
<th>Fungi?</th>
<th>Other (give details)</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. Bio L</td>
<td>?</td>
<td>4%</td>
<td>✓</td>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PRODUCT APPLICATION

8. What area did you use the product(s) on?
   - Fine, short mown turf e.g. golf or bowls green, cricket pitch
   - Golf tees
   - Winter sports pitch- high wear areas only
   - Larger area e.g. fairway, winter sports pitch, cricket outfield
   - Other – give details below

9. Did you leave any similar areas untreated for comparison i.e. a control?
   - Yes
   - No – all greens/ whole pitch treated

10. How many years have the products been used for?
    - 0-1 years
    - 1-2 years
    - Over 3 years

11. What month(s) of the year were the products applied?
    - J F M A M J JASOND

DESCRIPTION OF AREA TREATED

12. Describe the top 150mm of rootzone in the treated area.
    - Sand-dominated
    - 100% sand
    - Soil-based

13. What is the average soil pH of the treated area?

14. What is the age of treated area?
    - 0-5 years
    - 6-10 years
    - 11+ years

15. What was the dominant grass species of the area before and after bio-treatment?

<table>
<thead>
<tr>
<th>Poa annua</th>
<th>Bent</th>
<th>Bent +/or Fescue</th>
<th>Rye</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16. How much nitrogen (kg per hectare) is applied to treated area/year?

<table>
<thead>
<tr>
<th>Before treatment</th>
<th>After treatment</th>
</tr>
</thead>
</table>

17. How would you describe the drainage of the treated area?
    - Poor – less than 5 mm per hr
    - Average
    - Good – over 20 mm per hr

18. How much aeration is carried out on the treated area?
    - None
    - Every 1-2 weeks
    - Once a month
    - Every other month
    - 3 times a year
    - Less than 3 times year

19. On average, how many fungicide applications are applied per year on the treated area?

<table>
<thead>
<tr>
<th>Before treatment</th>
<th>After treatment</th>
</tr>
</thead>
</table>

RESULTS

20. Following product application, what results did you get?
    Rank in order, 1 being the most obvious result and 6 being the least noticeable effect.
    - No noticeable effect
    - Increased growth
    - Increased rooting
    - Reduced dry patch
    - Less fertilizer required
    - Less disease + fungicide use
    - Control of a specific disease outbreak – give details below:

<table>
<thead>
<tr>
<th>Control of a specific disease outbreak - give details below:</th>
</tr>
</thead>
</table>

21. Please give the results seen an overall mark:
    On a sliding scale, 1 represents very positive results, 5 represents negative or nil results and 3 = reasonable results.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent results obtained</td>
<td>No noticeable effect</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

22. Would you consider using biological products again in the future?
    - Yes
    - No

23. Any other comments you would like to make?
    (Continue on separate sheet if necessary)