# Higher energy content and more energy per hectare

## Revolution
### AR1 – Enhanced® Ryegrass

More than just another perennial ryegrass!

A newly released, diploid AR1 enhanced® perennial inter-species cross containing perennial ryegrass and meadow fescue parentage. A fine leafed, densely tillered and late heading variety (19 days later than Nui), showing excellent DM yields, strong winter activity, excellent forage quality, very high energy content and energy production per hectare and very good palatability. Very similar breeding background to Matrix. The AR1 endophyte has been bred into Revolution for greater endophyte stability, rather than just inoculated.

| Persistence | Heading date (days c.f Nui) | Sowing rate (kgs/ha) | Rust resistance (1 = susceptible, 9 = resistant) | Winter activity | Minimum Rainfall (mls) |
|---|---|---|---|---|---|
| 5+ years | +19 | 15 - 20 | 7 | High | 500+ |

**Benefits:**

- Higher livestock performance (proven - Lincoln University trial, Canterbury)
- High Metabolisable Energy content and ME production per hectare
- Very high yielding across all seasons
- Extremely strong autumn, winter and spring growth habit
- High digestibility and palatability
- Late heading (+19 days) to maintain quality for longer into spring
- Won't cause grass staggers or heat stress
- Good persistence
- Tolerant of attack from Argentine Stem Weevil and mealy bug
- Strong tiller density and soft leafy growth
- Suitable for all livestock types

## Pooled trial results – All New Zealand trials

| Variety | Autumn % | Winter % | Spring % | Summer % | Total % | Total kgDM/ha/yr |
|---|---|---|---|---|---|---|
| Matrix | 109 | 111 | 106 | 112 | 109 | 17,821 |
| **Revolution AR1** | **109** | **115** | **104** | **107** | **108** | **17,537** |
| Impact | 108 | 113 | 102 | 107 | 107 | 17,404 |
| Bronsyn AR1 | 103 | 101 | 100 | 102 | 101 | 16,477 |
| Cannon | 102 | 108 | 100 | 97 | 101 | 16,466 |
| Impact AR1 | 102 | 106 | 97 | 102 | 101 | 16,465 |
| Bronsyn | 104 | 94 | 101 | 103 | 101 | 16,454 |
| Aries | 101 | 97 | 100 | 99 | 99 | 16,166 |
| Samson | 99 | 96 | 97 | 98 | 98 | 15,944 |
| Aberdart | 86 | 88 | 107 | 98 | 98 | 15,921 |
| Nui | 91 | 89 | 96 | 91 | 92 | 15,043 |
| Quartet | 86 | 81 | 89 | 84 | 86 | 13,975 |
| Mean (kgDM/ha) | 2,787 | 2,877 | 6,000 | 4,643 | 16,306 | 16,306 |
| LSD | 133 | 191 | 229 | 245 | 653 | 653 |
| CV% | 9.1 | 12.6 | 7.2 | 10 | 7.6 | 7.6 |

Source: Pooled results of 7 Cropmark run trials at Darfield, Dunsandel, Hamilton, Huntly, Manawatu, Takapau & Tariki (2003-6).

**Liveweight gain - Lamb & Hogget grazing trial (Lincoln University, Oct 05 – Apr 06)**

| Variety | gLWG (hd/day) | kgLWG (hd/day) | kgLWG (ha) | ME Content (MJME/kgDM) (27/10/05 - 20/4/06) |
|---|---|---|---|---|
| **Revolution AR1** | **181** | **6.6** | **890** | **11.3** |
| Bronsyn AR1 | 166 | 6.2 | 824 | 10.9 |
| Extreme AR6 | 151 | 5.6 | 747 | 11.0 |
| Commando AR1 | 171 | 6.1 | 817 | 10.7 |
| Significance[1] | ** | ** | ** | ** |
| SED[2] | 4.3 | 0.13 | 16.5 | 0.13 |
| LSD[3] | 10.6 | 0.21 | 40.5 | 0.29 |

[1] Significance = significance of Analysis of variance ($F_{3,6}$), ns = non significant, * $P < 0.05$, ** $P < 0.01$
[2] SED = standard error of difference of mean
[3] LSD = least significant difference ($P = 0.05$)

## Revolution AR1 has higher ME content, and produces more energy per hectare, enabling higher livestock performance

| Variety | ME (MJME/kgDM) | DM Yields (kgs/ha) | ME/ha (MJME/ha) | Superiority of Revolution (%) | Digestibility (%) |
|---|---|---|---|---|---|
| **Revolution AR1** | **12.1** | **17,537** | **212,198** | **-** | **79.4** |
| Impact AR1 | 11.9 | 16,465 | 195,934 | 8.3 | 78.4 |
| Bronsyn AR1 | 11.8 | 16,477 | 194,429 | 9.1 | 78.0 |
| Nui | 11.5 | 15,043 | 172,995 | 22.7 | 76.2 |

Source: DM yield results based on the pooled summary of 7 Cropmark – run trials at Darfield, Dunsandel, Hamilton, Huntly, Manawatu, Takapau & Tariki (2003-6). ME results based on the pooled summary of 3 Cropmark – run trials conducted at Hamilton, Palmerston Nth & Dunsandel (2003-5).

***Higher energy should enable higher livestock performance***