Maize Portfolio 2019

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Welcome!

You’re reading our latest variety portfolio – our guide to help you select the most appropriate hybrids for your farming situation.

This easy to follow guide is divided into two market sectors – forage and biogas – to help your decision making.

Each section details the main criteria farmers should focus on, and is backed by a handy reference chart which enables you to compare relative performance.

Given the large number of varieties available, we suggest you contact us for advice. We would be delighted to help.

You will also find more help on our website at www.kws-uk.com:

- Online tools – Seed rate, soil temperature and heat unit services
- Agronomy and service guides (disease and pest guide, trials toolkit)
- Farmer testimonials from around the UK

We hope you will find this guide useful in selecting the right maize varieties for your specific needs.

Variety List

To find suitable varieties by using the KWS Live Maize Heat Unit Service online tool, just enter the postcode of your farm to select suitable varieties, in accordance with local conditions, soil type and field aspect.

Below are our key variety selections for next season. They are arranged in maturity order and by market sector.

Other varieties are available – for more advice please contact a member of the KWS team.

<table>
<thead>
<tr>
<th>FAO</th>
<th>Ultra Early</th>
<th>Forage</th>
<th>Grain</th>
<th>Biogas</th>
</tr>
</thead>
<tbody>
<tr>
<td>04</td>
<td>CITO KWS</td>
<td>150</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>AUGUSTUS KWS</td>
<td>160</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>RUBIERA KWS</td>
<td>160</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>SERGIO KWS</td>
<td>160</td>
<td>✓ ✓</td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>PEREZ KWS</td>
<td>160</td>
<td>✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>10</td>
<td>KWS ARTIKUS (KXB7005)*</td>
<td>160</td>
<td>✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>11</td>
<td>KROFT</td>
<td>160</td>
<td>✓</td>
<td></td>
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<tr>
<td>12</td>
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<td></td>
</tr>
<tr>
<td>14</td>
<td>Early/Maincrop</td>
<td>Forage</td>
<td>Grain</td>
<td>Biogas</td>
</tr>
<tr>
<td>16</td>
<td>AVITUS KWS</td>
<td>160/170</td>
<td>✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>17</td>
<td>KWS ARVID (KXB7007)*</td>
<td>170</td>
<td>✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>18</td>
<td>KWS CALVINI</td>
<td>170</td>
<td>✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>19</td>
<td>AUTENS KWS</td>
<td>170</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>20</td>
<td>SEVERUS</td>
<td>170</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>21</td>
<td>RODRIGUEZ KWS</td>
<td>170</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>22</td>
<td>EDGARD KWS</td>
<td>170</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>23</td>
<td>AURELIUS KWS</td>
<td>180</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>24</td>
<td>KEOPS</td>
<td>210/220</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>25</td>
<td>AMBROSINI</td>
<td>220</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>26</td>
<td>Energy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>AMAVERDE</td>
<td>220</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>FABREGAS</td>
<td>220</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>AMAVERITAS</td>
<td>240</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>AMAROC</td>
<td>240</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>FREDERICO KWS</td>
<td>250</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>KILOMERIS</td>
<td>260/270</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

The FAO number is a relative index of maturity. The lower the number, the fewer heat units that are required to reach harvest time. You can check your farm’s heat units and FAO suitability on the KWS website.

*Proposed name. Hybrid subject to a Pre NL Marketing Agreement
How do they compare?

We have compiled the results below to show starch yield (t/ha) and starch content (%) – these are the key targets we look for in ‘ultra early’ hybrids.

A high starch yield makes maize economic to grow in marginal areas, when combined with the protein and sugar from grass silage.

Maize Selection

Ultra Early

A selection of the earliest maturing hybrids available.

<table>
<thead>
<tr>
<th>Site / Soil Type</th>
<th>Feeding System</th>
<th>Yield Potential</th>
<th>Harvest Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Ideal for cool sites or low heat unit areas</td>
<td>✓ High starch content is ideal for a TMR at up to 50% maize silage</td>
<td>✓ Moderate yield potential for intermediate sites, where later varieties may not mature</td>
<td>✓ Secure a very early start to harvest on warmer sites</td>
</tr>
<tr>
<td>✓ Ability to extend drilling window later on heavier soils</td>
<td>✓ Beef finishing</td>
<td>✓ Excellent energy density ME/Kg</td>
<td>✓ Silage is available earlier in the autumn / winter</td>
</tr>
<tr>
<td>✗ Typically unsuitable for very sandy soils or high heat unit areas</td>
<td>✗ Low energy yield / ha</td>
<td>✗ Yield may not be optimised if grown on very warm or sheltered sites</td>
<td>✗ Ultra early varieties tend to dry down more quickly leading to a shorter harvest window</td>
</tr>
</tbody>
</table>

Data source: KWS LP255 2016 – 2017 Average of all Sites

Ultra Early (FAO 150-160)  Early (FAO 170-190)  Intermediate (FAO 200-220)
CITO KWS
Ultra Early: FAO 150

Step up your forage performance!

Characteristics / Quality
- Strong yield performance in the ultra-early segment – (94%) across marginal sites
- Rapid early vigour (7.3) ideal for early or late drilling
- Short season hybrid with full cob sheath coverage
- High starch (36.0%) and ME (11.61 MJ/Kg) content
- KWS top selling ultra-early hybrid, replacing KASPIAN and RAMIREZ

Breeder's view

A born leader!

Characteristics / Quality
- No.1 DM yield in its segment – (95%) across all marginal sites
- Rapid early vigour (7.2)
- Full cob sheath coverage
- Excellent starch (35.2 %) and ME content (11.49 MJ/Kg)

Data source: NIAB Forage Maize Descriptive List. First choice varieties for less favourable sites (2019)

Breeder's view

More options for early feedout! AUGUSTUS KWS is an ideal choice for short season maize silage production

Data source: NIAB Forage Maize Descriptive List. First choice varieties for less favourable sites (2019)
RUBIERA KWS
Ultra Early: FAO 160

The silage athlete!

Characteristics / Quality
- Class leading DM yield – (95%) across all sites
- Rapid early vigour (7.4)
- Semi dry down for low effluent risk
- Full cob sheath coverage
- Excellent starch (36.2%) and ME content (11.62 MJ/Kg)

Breeder’s view

RUBIERA KWS combines high DM yields with excellent ME and starch content owing to its very high grain content in the ear.

Data source: NIAB Forage Maize Descriptive List. First choice varieties for less favourable sites (2019)

SERGIO KWS
Ultra Early: FAO 160

Exceptional ME and early vigour!

Characteristics / Quality
- Above average DM yield for its maturity - (96%) across all sites
- Good early vigour (7.5) for early or late drilling
- Above average starch (36.1%) and ME (11.56 MJ/Kg) content

Breeder’s view

Versatile and vigorous!

SERGIO KWS gives excellent early vigour on any site.

Data source: NIAB Forage Maize Descriptive List. First choice varieties for less favourable sites (2019)
PEREZ KWS

Ultra Early: FAO 160

Gain higher yields faster!

Characteristics / Quality
- Strong DM yield in its segment – (102%)
- Ideal for late drilling on favourable sites to encourage earlier feedout
- Excellent starch (33.3%) and ME content (11.24 MJ/Kg)

Breeder’s view

Data source: NIAB Forage Maize Descriptive List. First choice varieties for less favourable sites (2019)

KWS ARTIKUS

Ultra Early: FAO 160

Ultra early yields...rocket fuel silage!

Characteristics / Quality
- Top DM yield in its class - across all NIAB trials
  (2017: 15.0t/ha – 20.0t/ha - Average 17.8 T/Ha DM)
- Rapid early vigour (2017: 6.0 – 8.7)
- Very high starch (2017: 37.8- 41.3%) and ME content
  (2017: 11.90 MJ/Kg)
- Full cob sheath coverage
- Superb kernel content and ripening stability
  – Leading maize hybrid from KWS’ programme – limited
  supply for Spring 2019

Breeder’s view

Data source(s): KWS LP250 (*2016 + *2017) & FERA NL Trials for Forage Maize – All sites
(2017) AFP 51/1561 (KXB7005) is subject to a PRE NL Marketing Agreement.
Early Harvest... Early Feedout...

Characteristics / Quality
- Stable DM yield across NIAB trials (2011: 103)
- Good early vigour for heavier soils or later drilling (2011: 8.1)
- Excellent silage quality; Starch (2011: 36.6%), ME content (2011: 11.5 MJ/Kg)

Data source: NIAB Descriptive List Trial Reports (2011)

KROFT is a stable performer on challenging sites where early harvesting is a necessity.

Breeder’s view

Your crop. Your choice. Our dedication.

Making your own decisions. That is independence. You know what's best for your farm. We have the ideal variety.

www.kws-uk.com

KWS. Independent like you.
Maize Selection

Early / Maincrop

High yielding hybrids for all mainstream growing areas.

<table>
<thead>
<tr>
<th>Site / Soil Type</th>
<th>Feeding System</th>
<th>Yield Potential</th>
<th>Harvest Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideal for all mainstream sites and moderate to high heat unit areas</td>
<td>A balanced starch content is ideal for a TMR up to 70% maize silage</td>
<td>Lowest cost per tonne for almost any mainstream site</td>
<td>Slower dry down leads to a wider harvest window</td>
</tr>
<tr>
<td></td>
<td>Ability to combine for crimped grain as a valuable by-pass starch source</td>
<td>Only slightly less yield than maincrop forage hybrids, with no risk of late harvest</td>
<td>Ideal for biogas plants looking to stagger their harvest</td>
</tr>
</tbody>
</table>

- Typically unsuitable for heavier / chalk soils
- Yield may not be optimised if grown on very warm or sheltered sites

How do they compare?

We have compiled the results below to show DM yield (t/ha) and DM content (%) – these are the key targets we look for in ‘early’ hybrids.

An economic yield of dry matter and early maturity are the key priorities for the mainstream grower.

![Yield (DM t/ha) v Maturity (DM %)](image)

Data source: KWS LP250 2016 – 2017 Average of all Sites
Ultra Early (FAO 150-160)  Early (FAO 170-190)  Intermediate (FAO 200-220)
AVITUS KWS pushes the boundaries of current early forage maize breeding for all livestock farmers.

**Forage performance to reign supreme!**

**Characteristics / Quality**
- Unrivalled DM yield in the early segment – over 18t/ha DM on the NIAB 2019 List
- 1st place for DM Yield, Starch (%) and ME (MJ/Kg) of all modern hybrids
- Top early vigour (7.6)
- Very high starch (36.1%) and ME content (11.63 MJ/Kg)
- Full cob sheath coverage
- Moderate stay green for faster ripening

Data source: NIAB Forage Maize Descriptive List. First choice varieties for favourable sites (2019)

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KWS ARVID delivers notable yields and starch content – progressing the trend in early maize performance.

**Elite grain density …No.1 Starch Yield!**

**Characteristics / Quality**
- Top DM yield in its class - across all NIAB trials (2017: 15.3 – 20.1 Average 17.9 T/Ha DM)
- 2016 KWS pre-screening trials (2016: 17.2 – 21.4 - Average 19.6 T/Ha DM)
- Rapid early vigour (2017: 6.0 – 8.3)
- Very high starch (2017: 36.5 – 40.9%) and ME content (2017: 11.89 MJ/Kg)
- Full cob sheath coverage
- Superb kernel content and ripening stability

In both 2017 NL trials, and KWS’ 2016 pre-screening the hybrid was noted for its above average grain density.

**Breeder’s view**

With the early release and launch from KWS’ screening programme, AVITUS KWS is a new benchmark for early maize breeding – AVITUS KWS is grown in the UK, Denmark, Netherlands and Northern France, for livestock farmers relying on early maturity maize silage.

Data source(s): KWS LP250 (*2016 + *2017) & FERA NL Trials for Forage Maize – All sites (2017) AFP 65/1962 (KXB7007) is subject to a PRE NL Marketing Agreement
KWS CALVINI
Early: FAO 160/170

Drive your ration performance – maturity, yield & starch in one!

Characteristics / Quality
- Top DM yield in its class - across all NIAB trials (2017: 102 – [18.56 t/ha DM])
- Top early vigour (2017: 7.6)
- Very high starch (2017: 35.8%) and ME content (2017: 11.49 MJ/Kg)
- Full cob sheath coverage
- High kernel content and ripening stability

Breeder’s view

KWS CALVINI offered superb early vigour, high grain content and yield stability 2015-2017 and is set to be a leading hybrid in the UK.

Data source(s): KWS LP250 (*2016 + *2017) & FERA NL Trials for Forage Maize – All sites (2017)

AUTENS KWS
Early: FAO 170

Outstanding field performance!

Characteristics / Quality
- Top DM yield in its class - across all NIAB trials (2014: 112; 2015: 109)
- 2019 NIAB List leading hybrid for DM Yield – 104% : 18.4 t/ha DM
- Faster dry down with good standing power
- Approx. 4 days earlier to harvest than SEVERUS in KWS screening trials observations
- Outstanding early vigour on all soil types (2014: 8.2; 2015: 7.6, 2018 DL: 7.4)
- 2019 DL: 7.5
- Full cob sheath coverage
- Very high starch (2015: 35.2%, 2016: 34.6%) and ME content (2015: 11.6 MJ/Kg; 2016: 11.5 MJ/Kg)
- 2019 DL 32.9 % Starch, 11.48 ME (MJ/Kg)

Breeder’s view

AUTENS KWS delivers an impressive combination of bulk DM and higher grain content for added starch % – a new benchmark in KWS silage trials, compared with Severus.

Data source: NIAB Forage Maize Descriptive List. First choice varieties for favourable sites (2019)
SEVERUS
Early: FAO 170

Commanding Yields from KWS!

Characteristics / Quality
- Stable DM yield – across all NIAB trials (99%)
- Outstanding early vigour on all soil types (7.4)
- Very high starch (35.1%) and ME content (11.51 MJ/Kg)

Breeder’s view

Data source: NIAB Forage Maize Descriptive List. First choice varieties for favourable sites (2019)

RODRIGUEZ KWS
Early: FAO 170

Versatile in silage or grain!

Characteristics / Quality
- High DM yield (102%)
- Reliable early vigour (6.9)
- Full cob sheath coverage
- Stay green plant type for good eyespot resistance
- Excellent starch (34.8%) and ME content (11.60 MJ/Kg)

Breeder’s view

Data source: NIAB Forage Maize Descriptive List. First choice varieties for favourable sites (2019)

SEVERUS has been the benchmark for UK variety suitability in the early segment and remains a popular choice amongst KWS hybrids.

Versatile for grain or silage production, RODRIGUEZ KWS is stable particularly when grown at altitude or on heavier soils.
EDGARD KWS
Early: FAO 170

Good early vigour, DM yields and feed value...

Characteristics / Quality
- Top DM yield in its class - across NIAB trials (2014: 106 Rel. DM Yield)
- Equal maturity to SEVERUS in KWS screening trials observations
- Good early vigour on all soil types (2014: 7.6)
- Full cob sheath coverage
- Very high starch (2014: 34.3% and ME content (2014: 11.36 MJ/Kg)

EDGARD KWS was tested in 2014 in KWS screening and NL trials in both the UK and Denmark, offering stable yield performance since its introduction.

Breeder’s view

AURELIUS KWS
Early: FAO 180

A new dynasty in maize growing!

Characteristics / Quality
- Unsurpassed DM yield in its segment – (2013-16: 110-112%) across all sites* 104% DM Yield 2019 Descriptive List – Favourable sites
- Rapid early vigour 7.6
- Full cob sheath coverage
- Excellent starch (32.4%) and ME content (11.44 MJ/Kg)
- Ideal balance of forage yield and energy content for 60 – 70% + maize inclusion

Outstanding yield potential to rival later maturity hybrids – AURELIUS KWS is ideal for a higher maize inclusion in modern TMR systems.

Breeder’s view

Data source(s): FERA NL Trials for Forage Maize – All sites (2014)

Data source: NIAB Forage Maize Descriptive List. First choice varieties for favourable sites (2019)
KEOPS
Maincrop: FAO 210/220

KEOPS offers a wide drilling and harvest window for silage or AD in warmer areas.

**Breeder’s view**

**Multi-use silage or biogas – wide drilling window...**

**Characteristics / Quality**
- Heavy yield potential (50 - 55 t/ha)
- Ideal for spreading harvest or drilling window
- High grain:stover ratio for more stable ripening in cooler seasons
- Rapid early vigour
- Recommended chop length: 7 – 9 mm
- Recommended seed rate: 42,000 seeds / acre (103,000 seeds / hectare)
- In low rainfall areas: 38,000 seeds / acre (94,000 seeds / hectare)

Data source: KWS Agroservice 2015 – 2016

AMBROSINI
Maincrop: FAO 220

AMBROSINI continues to be a true benchmark for all FAO 200-220 maincrop hybrids within the KWS programme.

**Breeder’s view**

**One of KWS’ highest yielding silage hybrids**

**Characteristics / Quality**
- 104% DM yield across all NIAB trials
- Good early vigour (7.3) on all sites
- Balanced starch (28.8%) and ME content (11.14 MJ/Kg)

Data source: NIAB Forage Maize Descriptive List. Second choice varieties for favourable sites (2019)
Biogas Selection

Maximise your energy yield per hectare with these varieties

<table>
<thead>
<tr>
<th>Site / Soil Type</th>
<th>Feeding System</th>
<th>Yield Potential</th>
<th>Harvest Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Ideal for all mainstream sites, and high heat unit areas</td>
<td>✓ Maximised cellulose and hemi-cellulose for longer retention times in biogas plants</td>
<td>✓ Optimum cost per tonne</td>
<td>✓ High stay green nature avoids a short harvest window</td>
</tr>
<tr>
<td>✓ Ideal for sandy soils where drought tolerance and lower seed rates help to preserve yield</td>
<td>✓ Stay green nature for easier chop length management and storage</td>
<td>✓ Yield potential can be maximised by drilling date and careful drilling planning</td>
<td>✓ Wide range of maturities available to spread workload</td>
</tr>
<tr>
<td>✗ Typically unsuitable for heavier / chalk soils – or colder sites</td>
<td>✗ Avoid growing feedstock at excessive distance from the main clamp</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How do they compare?

We have compiled the results below to show DM yield (t/ha) and DM content – these are the key targets we look for in our energy maize hybrids.

A high DM yield is directly linked to methane yield. A key target for farmers looking to optimise their feedstock cost and achieve an adequate DM content suitable for anaerobic digestion.

Data source: KWS LP251 2016-2017 Average of all Sites
Early (FAO 190-210) Intermediate (FAO 220-240) Late (FAO 250-260)
AMAVERDE
Energy: FAO 220

Enhance your fresh weight and dry matter!

Characteristics / Quality
- Mass type, high volume plant, semi stay green
- Heavy yield potential (55-60 t/ha)
- Rapid early vigour and early flowering – ideal for later planting
- Recommended chop length: 7-9 mm
- Recommended seed rate: 42,000 seeds / acre (103,000 seeds / hectare)
- In low rainfall areas: 38,000 seeds / acre (94,000 seeds / hectare)

Data source: KWS Agroservice 2014 – 2015

Breeder's view
AMAVERDE is useful for pulling harvest forward – it responds well to lower seed densities on sandy soils, whilst remaining greener for longer.

FABREGAS
Energy: FAO 220

The early midfielder… proven in practice!

Characteristics / Quality
- Heavy yield potential (50-55 t/ha)
- Safe maturity for the majority of mainstream sites (27-31% DM)
- Recommended chop length: 7-9 mm
- Recommended seed rate: 42,000 seeds / acre (103,000 seeds / hectare)
- In low rainfall areas: 38,000 seeds / acre (94,000 seeds / hectare)

Data source: KWS Agroservice 2008 – 2011

Breeder's view
The long term standard for AD maize production since its UK introduction.
**AMAVERITAS**

Energy: FAO 240

**Breeder’s view**

AMAVERITAS is the No.1 in DM Yield over 2015 to 2017 in KWS’ Northern European trials network.

**Characteristics / Quality**
- Heavy yield potential (55 - 60 t/ha)
- Ideal for spreading harvest or drilling window on lighter land
  - Surpasses former generation hybrids eg: RONALDINIO, BARROS and CAROLINIO
- Rapid early vigour
- Recommended chop length: 7 – 9 mm
- Recommended seed rate: 42,000 seeds / acre (103,000 seeds / hectare)
- In low rainfall areas: 38,000 seeds / acre (94,000 seeds / hectare)

Data source: KWS Agroservice 2015 – 2016

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**AMAVERITAS**

Energy: FAO 240

**Top yields for biogas – rise to the challenge!**

**Breeder’s view**

AMAVERITAS is the No.1 in DM Yield over 2015 to 2017 in KWS’ Northern European trials network.

**Characteristics / Quality**
- Heavy yield potential (55 - 60 t/ha)
- Ideal for spreading harvest or drilling window on lighter land
  - Surpasses former generation hybrids eg: RONALDINIO, BARROS and CAROLINIO
- Rapid early vigour
- Recommended chop length: 7 – 9 mm
- Recommended seed rate: 42,000 seeds / acre (103,000 seeds / hectare)
- In low rainfall areas: 38,000 seeds / acre (94,000 seeds / hectare)

Data source: KWS Agroservice 2015 – 2016

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**AMAROC**

Energy: FAO 240

**Heavy yield potential**

**Characteristics / Quality**
- Heavy yield potential (55 - 60 t/ha)
- Ideal for spreading harvest or drilling window on lighter land
  - Surpasses former generation hybrids eg: CAROLINIO and BARROS
- Rapid early vigour
- Recommended chop length: 7 – 9 mm
- Recommended seed rate: 42,000 seeds / acre (103,000 seeds / hectare)
- In low rainfall areas: 38,000 seeds / acre (94,000 seeds / hectare)

Data source: KWS Agroservice 2015 – 2016

**AMAROC offers excellent DM yield for AD feedstock production on favourable sites, and high heat unit areas.**

**Breeder’s view**
FREDERICO KWS

Energy: FAO 250

Unsurpassed yield potential for all mainstream sites with later harvesting

**Characteristics / Quality**
- Heavy yield potential (60 - 64 t/ha+)
- Excellent early vigour
- High volume plant type
- Safe maturity for the majority of mainstream sites (27 -31% DM)
- Recommended chop length: 7-9 mm
- Recommended seed rate: 42,000 seeds / acre (103,000 seeds / hectare)
- In low rainfall areas: 38,000 seeds / acre (94,000 seeds / hectare)

Data source: KWS Agroservice 2013 – 2014

Breeder’s view

KILOMERIS

Energy: FAO 260/270

The ultimate in feedstock yield – ideal for light soils!

**Characteristics / Quality**
- Ideal hybrid for drought prone areas where yield exceeds earlier hybrids*
- Mass type, very high volume plant, strong stay green
- Excellent early vigour
- Recommended chop length: 7-9 mm
- Recommended seed rate: 40,000 seeds / acre (98,000 seeds / hectare)
- In low rainfall areas: 38,000 seeds / acre (94,000 seeds / hectare)

*(60 t/ha + in optimum conditions, 40 – 45 t/ha in dry areas depending on cultivation)

Data source: KWS Agroservice 2013 – 2016

Breeder’s view

FREDERICO KWS offers maximum yield performance on light soil types – ideal for late harvesting and the lowest cost per tonne.

Breeder’s view

KILOMERIS offers top yield potential from lighter soils – exclusive for biogas use.

Breeder’s view
Drilling Tips

Optimum drill timing depends on soil conditions, temperature and seedbed moisture. Modern hybrids have a high degree of cold tolerance but should not be drilled before soils have reached an even temperature for 3-4 days (8°C for light soils, 12°C for heavy soils) to give the best possible establishment.

**Drilling considerations**
- Soil type (heavy, medium or light soils), temperature and moisture availability
- Site and yield potential (e.g. warm site with light soils, cold site with heavy soils)
- Short term weather forecast

**Effects of premature drilling**
- Slowed germination
- Uneven emergence, necessity to increase seed rates
- Reduced nutrient uptake (low soil temperature)

**Effects of late drilling**
- Delayed harvesting
- Requirement for earlier maturing varieties
- Increased risk of lodging

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**Recommended seed rates**

<table>
<thead>
<tr>
<th>Plants/ha (acre)</th>
<th>Units*/ha (acre)</th>
<th>Deposition distance (cm) at 75cm (30&quot;)</th>
<th>at 50cm (19&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>85,000 (34,000)</td>
<td>1.8 (0.72)</td>
<td>14.9</td>
<td>22.4</td>
</tr>
<tr>
<td>90,000 (36,000)</td>
<td>1.9 (0.76)</td>
<td>14.1</td>
<td>21.2</td>
</tr>
<tr>
<td>95,000 (38,000)</td>
<td>2.0 (0.81)</td>
<td>13.3</td>
<td>20.1</td>
</tr>
<tr>
<td>100,000 (40,000)</td>
<td>2.1 (0.85)</td>
<td>12.7</td>
<td>19.0</td>
</tr>
<tr>
<td>105,000 (42,000)</td>
<td>2.2 (0.89)</td>
<td>12.1</td>
<td>18.1</td>
</tr>
<tr>
<td>110,000 (44,500)</td>
<td>2.3 (0.93)</td>
<td>11.5</td>
<td>17.3</td>
</tr>
<tr>
<td>115,000 (46,500)</td>
<td>2.4 (0.98)</td>
<td>11.0</td>
<td>16.6</td>
</tr>
</tbody>
</table>

*1 Unit = 50,000 seeds

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Pros/Cons of 50cm v 75cm row widths

Row spacing differs from plant density but can sometimes be confused with it.

Typical yield responses are difficult to measure when harvested for silage with the main effects being a difference in starch content and dry matter for the same hybrid at equal harvest time.

Closer row spacing produces a denser crop with higher freshweight yields and is best adopted on favourable sites. Thicker crops also show a faster dry down over standard row widths, but care should be taken to avoid excess plant numbers, as this is likely to induce lodging.

**Advantages**
- Faster row closing and inhibition of weeds
- Reduced erosion risk
- Minimal risk of excess residual nitrogen
- Ability to tramline
- Drill utilization between crops

**Disadvantages**
- Higher risk of seed bunching if using a non precision drill
- Potential for higher lodging on exposed sites
- Overall higher drilling cost
- Precludes crimping / CCM or dried grain maize harvesting
- Necessitates possible adjustment of starter fertilizer (DAP / MAP) rates

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*Images supplied courtesy Väderstad*
Organic Maize Growing Tips

Organic livestock production using maize silage has been increasing steadily over the last few seasons. Maize silage together with organic whole crop cereals and grass offers high yields and a key source of rumen degradable starch for dairy or beef units.

Key considerations for organic maize growing:

Cultivation & Pre Drilling
- Organic production is favored on light sandy to loam soils, cultivation on clays should be avoided. Cross harrowing ideally 2 weeks before drilling should help to discourage bird damage along the rows, after drilling. Aim to achieve a fine seed bed to discourage slug activity, rolling is not essential and may slow soil temperature accumulation if seedbeds are already very fine however. Frit fly attack can be minimized by avoiding fields coming out of grass leys.

Drilling
- Allow seedbed temperatures to rise to a minimum of 12 – 15 deg. C this is warmer than conventional production, as seeds are un-treated and will also be placed somewhat deeper to limit bird attack. Later drilling will also encourage much faster emergence and growth to the vital 3-5 leaf stage.

Organic Assurance
- Organic assurance schemes will require a derogation to use untreated – conventionally produced hybrid maize seed. KWS offer early high vigor hybrids each season, available in untreated units. Please contact us to discuss for further advice.

Effects of late harvesting
- Higher harvesting costs and increased field losses
- Low digestibility and palatability
- Excessive dry matter and poor clamp stability
- Difficult clamp consolidation which will require a shorter chop length
- Soil damage/compaction

The KWS UK portfolio focuses on offering farmers increased flexibility in harvest date, demonstrated in two key areas:
- Avoiding rapid dry down of the leaf stover maintains a good level of stay green
- Early flowering and cob maturity

Harvesting Tips

Effects of harvesting too early
- Lower yield
- Reduced energy, starch and ME which results in lower intake potential
- Higher risk of clamp effluent which will require a longer chop length
- Poor dry matter intake and palatability resulting in acidic silage

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Harvesting
- Aiming to widen the harvest window will give the farmer increased flexibility in harvest date, associated benefits in planning the rotation,
- Forecasting the expected date of harvest is important for many maize growers and has proved to be a useful tool in deciding when to sow and harvest.
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As a key supplier of new varieties to UK agriculture, KWS UK provide a range of crops to meet varied end-market requirements. We use a range of technologies to ensure improved consistency in crop performance.

www.kws-uk.com
The described varieties have reached these results/tax traits in practice and trials. The achievement of the results and the genetic causes of atypical expression in the plants also depends on uncontrollable factors. From there we are not able to assume any responsibility or liability that these results/traits will be reached under all environmental conditions. This booklet has been produced to the best knowledge available at the time of printing, no liability can be accepted for any mistakes or loss in relation to this booklet.