PIONEER® BRAND

11CH4 BIOGAS FIBRE TECHNOLOGY

PIONEER®

Pioneer® brand 11CH4 is a revolutionary patented Biogas silage product designed to:

- Significantly increase methane production from grass and silages compared to conventional acetic acid releasing bacteria
- Unlock nutrients and release energy:

  Stage 1 - During ensiling specially selected bacteria of the strain Lactobacillus buchneri LN40177 release ferulate esterase enzymes that are able to decouple lignified cell wall bondings thereby unlocking nutrients and releasing energy

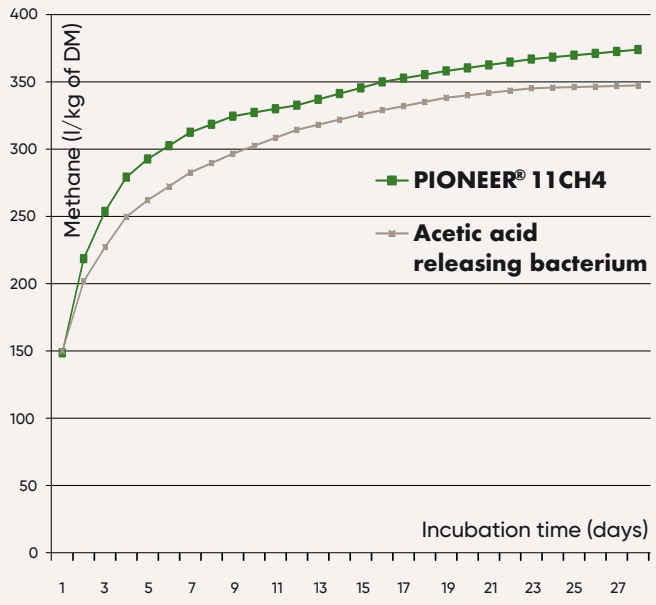
  Stage 2 - Degradation of the "pre-digested" fibre components by microorganisms in the fermenter; because of this, utilisation of decoupled fibre components is greatly improved. This revolutionary mode of action for silages intended for use in biogas plants is unique to PIONEER® 11CH4.

8% more methane yield
Increased rate of substrate degradation
Energy consumption whilst stirring reduced
Improved aerobic stability
Less heating, 50% lower silage losses

Available in Package Sizes: 	
X	**Improves fermentation and reduces dry matter loss**
X	**Improves nutrient preservation**
X	**Significantly reduces heating at the silage face**
X	**Helps reduce heating in entire Total Mix Ration (TMR)**
X	**Improves fibre digestibility**

IMPORTANT: Information and ratings are based on relative comparisons with other Pioneer® brand inoculants within each specific crop, not competitive products. Information and ratings are assigned by Pioneer Forage Additive Research, based on average performance across area of use under normal conditions, over a wide range of both environment and management conditions, and may not predict future results. Product responses are variable and subject to any number of environmental and management conditions. Please use this information as only part of your product positioning decision. Contact a Pioneer sales professional for the latest and most complete listing of traits and scores for each Pioneer® brand product. Fermentation – rate and extent of pH decline and the composition of fermentation acids occurring in silage. Aerobic Stability – relative heat development compared to ambient temperature. Aerobic Stability considers both how quickly silage begins to heat and the amount of heat generated while remaining above ambient temperature. Fibre Digestibility – the digestibility of neutral detergent fibre (NDF) by the ruminant animal expressed as a percentage of the total NDF.

Increased methane production with fibre technology compared to conventional heterofermentative bacteria



Source: Pioneer, 2008

Plant Grow Harvest Store Feed The Silage Zone®

PIONEER®

Pioneer® Brand Inoculants

Pioneer proprietary silage inoculants continue to provide those striving to make high quality silage with unique products that reduce silage dry matter losses and improve silage quality.

Mode of Actions	Product	Forage	Purpose
Unique Fibre Technology	**11GFT**	Grass and wholecrop cereal silages	Fermentation, animal performance and fibre digestibility, aerobic stability
	11CFT	Maize silage	Fermentation, animal performance and fibre digestibility, aerobic stability
	11AFT	Alfalfa/lucerne silage	Fermentation, animal performance and fibre digestibility, aerobic stability
	11CH4	A wide range of high dry matter silages	Aerobic stability and gas production
Traditional Technology with Rapid React	PIONEER® **11G22** RAPID REACT® AEROBIC STABILITY	High dry matter grass, wholecrop cereal and pea/cereal silages	Fermentation, animal performance and aerobic stability
	PIONEER® **11C33** RAPID REACT® AEROBIC STABILITY	Maize silage	Fermentation, animal performance and aerobic stability
	PIONEER® **11B91** RAPID REACT® AEROBIC STABILITY	Crimped maize grain	Fermentation, animal performance and aerobic stability
	PIONEER® **1188**	Grass silage below 30% dry matter	Fermentation and animal performance
	PIONEER® **11A44**	A wide range of high dry matter silages	Aerobic stability