

# The World Agriculture Industry

## A Study In Falling Supply And Rising Demand

26 May 2010

**Agricultural Land Available:** 1.5 trillion hectares

**Value of world's Agricultural Land:** US\$5 trillion

**World Population 2010:** 6.8bn

**World Population 2050:** 9.1bn

**Africa's Population 2010:** 1.8bn

**Africa's Population 2050:** 3.6bn

**10 Year Performance, US Farmland:** +100%

**10 Year Performance, UK Farmland:** +95%

**Word per Capita Food Consumption. 1965:** 2,358 kcal per person

**World per Capita Food Consumption 1998:** 2,803 kcal per person

**World per Capita Food Consumption 2030 est:** 3,050 kcal per person

**Pooled Funds Available for Agricultural Investment, Worldwide, listed in this study:** 18

**Quoted Agricultural Stocks Available For Investment, Worldwide, listed in this study:** 42

After decades on the periphery as an investment category, farmland worldwide is increasingly becoming an acceptable holding for traditional investment funds. We believe that farmland, and agriculture generally, will shortly move beyond the 'acceptable' in the eyes of the world's investment management community and become a core product. In the future, we believe, it will be as normal for a pension fund to invest direct in farmland – or in a fund specialising in farm ownership – as in commercial property. Similarly we anticipate the emergence of a more defined "agriculture sector" embracing all of equipment & systems suppliers; genetics & biotech expertise; and land management practices able to manage production yields and sustainability alike.

The numbers involved are huge; 1.5bn hectares of land worldwide can be classified as suitable for arable production. This land has a current estimated value of circa US\$5 trillion. Food prices, after decades of decline, are starting to rise. Farmland prices are showing annual increases in value that put conventional equities to shame.

In this research document we examine some of the underlying trends that are driving these rises in prices worldwide, and that are encouraging investment banks, hedge funds and investment management organisations to launch and promote new pooled funds to act as vehicles for investment in this area. We examine some of the investment philosophies that are being followed, and the structures of some of these funds.

We also look at some of the quoted companies offering a way to take a stake in the agriculture sector.

We believe that the next phase of the re-emergence of agriculture will be a focus on the value adding scientific, infrastructure and management assets needed to generate extra productivity.

*This is the first of a number of studies in the agricultural sector that Hardman & Co will be producing over the coming year.*

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For enquiries about future research coverage, and for fund-specific and company-specific research notes, please contact Doug Hawkins at [research@hardmanandco.com](mailto:research@hardmanandco.com)

**Analyst:** Doug Hawkins

**Email:** [research@hardmanandco.com](mailto:research@hardmanandco.com)

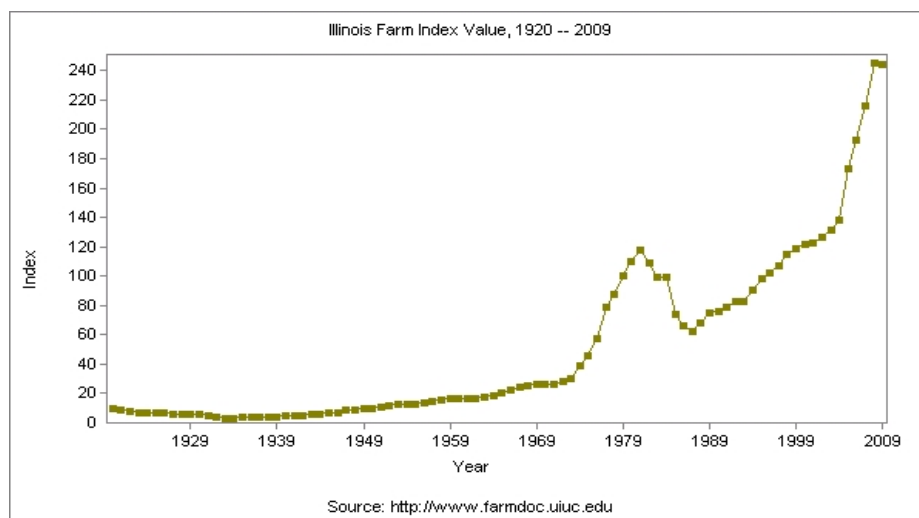
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## A World Rebalancing Of Agriculture

Worldwide, 1.5bn hectares of land can be classified as suitable for arable production. They have an estimated current value of circa \$5 trillion, with significant divergence in value between regions that is now attracting investor attention. Since the soft commodity price surge in 2007/8 and the growing sensitivity of governments everywhere to food security in a time of climate change, the wellbeing and value of these 1.5bn hectares has suddenly become a subject of intense political, environmental and economic interest.

With a new swathe of wealth accumulating consumers building in the BRIC economies, the boom in consumption is receiving new impetus. Consumption of course includes food, and just as the BRICs are now competing with Europe, Japan & US for global energy and hard commodity resources, so too this new group of consumers is competing for food resources.

After decades in decline, food prices have begun to rise. The FAO Food Price Index rose 24% in the 3 years to end 2009. However it is not just competition for supply from new consumers that is driving food price inflation. It is also driven by new constraints on supply. Arable land is in demand for biofuel. 2% of the world's arable land is now in use for bio-energy, with some agricultural economists predicting that cereal and soya prices could become directly linked to the \$ oil price.



Land is also under pressure from population growth; between 1997 & 2007 the USA lost 1.4% of its farmland acres to urban development & biodiversity measures. Historically urban development has tended to concentrate on the areas of richest agricultural land, and of course from climate change.

Not surprisingly therefore agricultural land has recently become a focus of investor interest, both as a portfolio hedge against equities and cash / inflation, but also as a play on the need to feed a rapidly growing human population during this era of our planet that has been dubbed "the Anthropocene".

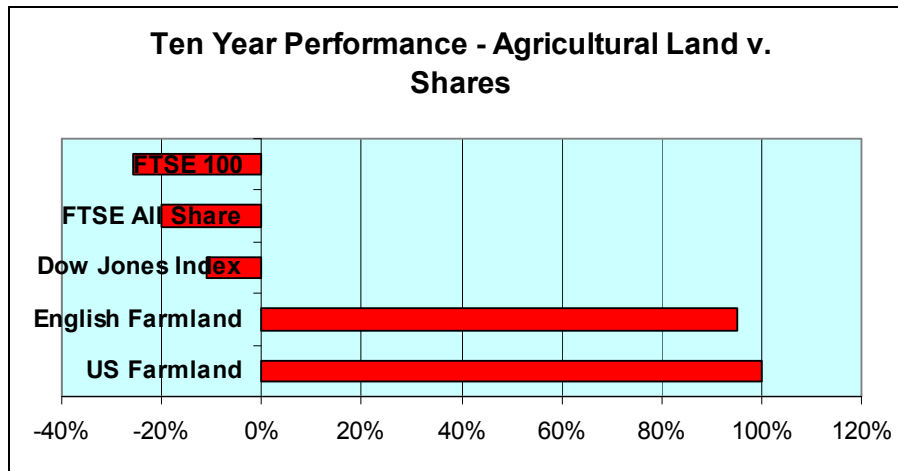
Since the end of 2007 more than \$13bn of investor funding has found its way into agricultural land or linked investment. In addition to this some larger deals are thought to have been done between states. This report briefly reviews the evidence to support the conclusion that assets linked to agriculture, both fixed and intangible, are at the early stage of a rebalancing within the global economy. The \$5 trillion value of the world's agricultural land is equivalent to only of 7% - 10% of the value of global equity markets. Yet this land is feeding over 6 billion people and is being pressed into feeding a further 3 billion by 2050.

... Or Why  
Agricultural  
Land Is About  
To Become A  
Key Investment  
Segment For  
Investment  
Managers  
Worldwide

More Than  
US\$1.3bn Of  
Investor  
Funding Put Into  
Agricultural  
Land In Three  
Years

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Farmland prices in both the US and the UK have considerably outperformed the stock markets as investments on a ten year timescale. In fact the performance figures make equities look an embarrassingly inept bet. (Farm price statistics: University of Illinois, Savills).

It is reasonable to suppose that a rebalancing in these positions is underway. Driven by food price inflation, rising investment in productivity, and demand from investment funds, we estimate that by 2020 agricultural land values could equate to circa 15% - 25% of the value of global stock markets; by 2050 it is possible to argue that food producing land might have a superior value to all other assets classes, if by then it is recognised for its central place in ensuring that a forecast human population of 9bn plus is sustained.

**Agriculture In Perspective**

Whereas the percentage share of agriculture in the developed economies tends to be very low at less than 2%, it is conversely higher in the lesser developed economies. The USA for example has a strong agriculture sector, yet this accounted for only 1.2% of GDP in 2009. The CIA estimates that as a component of global GDP, the sector represents around 6% or \$4.2 trillion of global output pa – equal to around \$650 per capita. As a percentage of global equities the listed agriculture related stocks account, we estimate, for less than 2% of total capitalisations, yet by comparison the S&P Financials sector enjoys a share of some 16% of total capitalisations whereas Financials' share of gdp is now less than 8%.

Agriculture is 2% or Less Of GDP In Most Developed Economies

The market capitalisation of US agriculture related stocks – adjusted for non-agricultural output – suggests a weighting in line with % contribution to GDP. But the outlook for these companies to increase their share of domestic and global gdp is significant as the world grapples with the need to increase food production. This suggests a strong basis for a rerating of agriculture related investments and assets.

**Demand & Supply Pressures For Agricultural Commodities**

The FAO estimates that agricultural output will have to rise by 70% to feed the projected 9.1bn (6.8bn) human population circa 2050. FAPRI's 2010 World Agriculture Outlook forecasts that demand for meat will grow by nearly 23% over the next 10 years to reflect the growing appetite for animal protein in the BRIC economies – China foremost amongst them. Between 1980 and 2007 per capita meat consumption has increased from 44lbs to 110lbs in China.

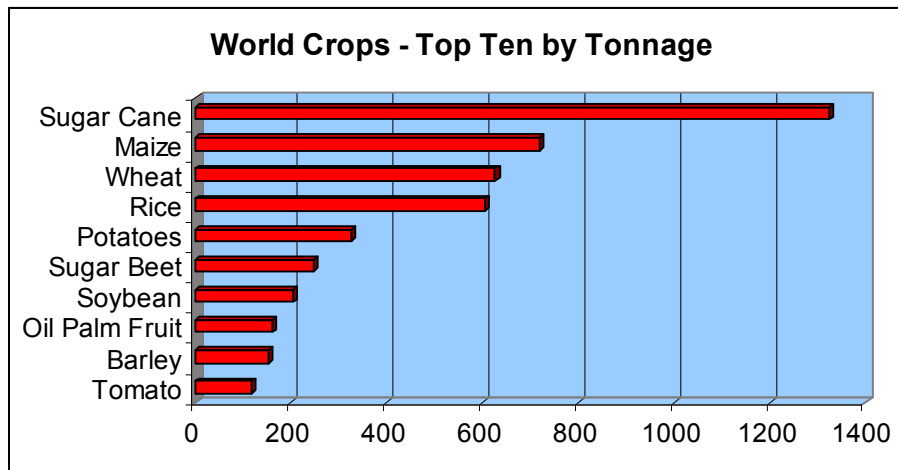
Demand For Meat Will Grow 23% In Ten Years

Animal protein is costly to produce relative to grain, pulses and vegetables and it accounts for more than 3.5bn hectares of the world's agricultural land; a greater demand for meat means a greater call on the world's 1.5bn arable acres to produce

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feedstuffs for meat production. The pressure on the arable acreage to produce more comes from three sources: the need for greater crop production for human consumption linked to population growth; increased demand for animal protein, and therefore for animal feed linked to greater per capita wealth; biofuel production as an alternative to petroleum derived fuels, all at a time when settlements for rising populations are encroaching on agricultural land and climate change is putting productive land at risk through desertification.



These figures from the FAO show that sugar cane is by far the world's largest crop, by tonnage. Food grains taken as one group are larger than sugar cane, however. Palm oil and soybean volumes have been growing rapidly under the influence of biofuel demand; oil palm is arguably the most productive crop per acre of its type, which goes further to explain its recent popularity.

These combined pressures have caused the FAO to predict that agricultural commodity prices will rise by 10% - 30% over the next 10 years. The spread of this range reveals a high degree of uncertainty with the price outcome – but not the direction of price movement; developments in agricultural science along with sustained investment in the sector will impact on productivity and commodity pricing. Meat production is estimated to need to increase by nearly 75% to 2050 to feed the growing numbers in the developing economies [Africa's population is expected to double to circa 1.8bn], and cereal production will need to be 1 billion tonnes higher at 3.1bn [2.1bn] in 2050.

To meet this demand outlook the FAO estimates that the sector requires new investment of more than \$80bn in the developing economies. Crucially the FAO suggests that arable land in the developing countries [and specifically in Africa and Latin America] needs to expand by 120m hectares – an increase of 8% on the current bank of globally available arable land. The consensus view of the global agencies charting the demands for food is that much of the land not yet in use suffers from a variety of structural & chemical constraints, disease and infrastructure limitations.

The planet's remaining forests – especially in the developing countries – are being viewed as a potential source of new agricultural land – in part to offset the growth of urban spread. This raises profound issues for bio-diversity and sustainability. Finally there is water; while water supplies are deemed sufficient for mankind's needs, the distribution of these supplies is uneven and regional scarcity is already proving problematic in parts of Africa and Asia. Developing crops with the ability to produce on reduced water input is one of the challenges facing botanical science.

Sustainability of output and sustainability of biodiversity is also on the agenda for agricultural science. Soil science, [especially with a focus on structure], genetic marking, genetic engineering, & disease control are likely to prove increasingly valuable areas of expertise. And there is great faith in the ability of science to deliver; 90% of the growth in crop production is expected to derive from improving yields and increased crop intensity, but this urgency for these developments is clear when viewed in the

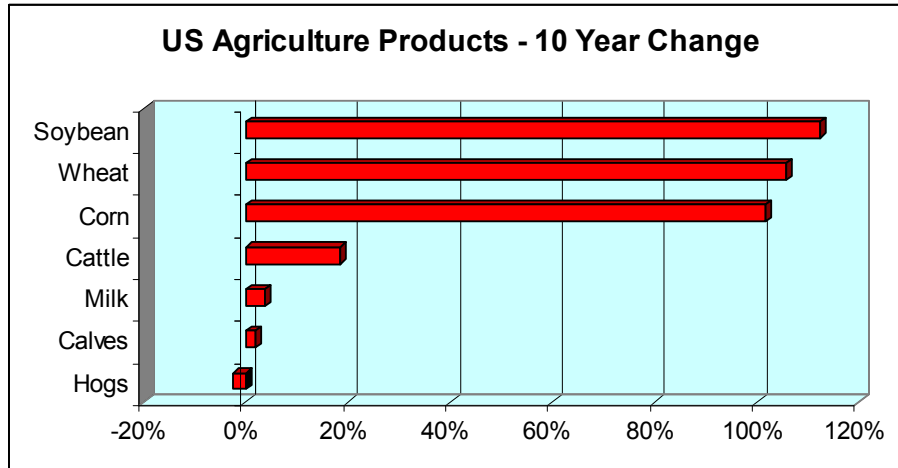
Africa's population will double by 2050

Crop Yields In Africa Are Falling

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context of annual growth in crop yields of 1.2% in the US and flat to falling across Africa.



*There has been a huge variance in the ten year performance of the key agricultural products in the USA. Grains of various types have seen a huge increase in price, partly driven by the politically inspired push for biofuels. The hoof-based part of the farming economy has seen little or no change in prices over the past ten years, as improved efficiencies and stock breeding have kept pace – until now at least – with rising demand. (Statistics: University of Illinois).*

## The Investment Horizon

### Agri Funds

Since 2007/8 interest in investment in the agricultural sector has noticeably increased with a raft of new funds established around this time or more recently, to give investors exposure to demand and productivity growth across the sector. “Farm to fork” strategies are popular with equities only funds looking for medium to long term capital growth via participation across all parts of the agricultural commodity value chain [**CF Eclectica** £95m/ **Barings Global Agriculture Fund** £60m].

Shorter term funds have emerged to focus on agricultural commodities [**Aliquot Agriculture / Ceres Agriculture Fund** (£143m)] and Mixed Strategy funds have been established to invest in land, commodities and equities [**Sarasin AgriSar** £68m], or in land and land associated equities & land focused private equity funds. **Schroder Asset Management** operates the Schroder Alternative Solutions Agricultural Fund, which is a futures based fund currently closed to new investment.

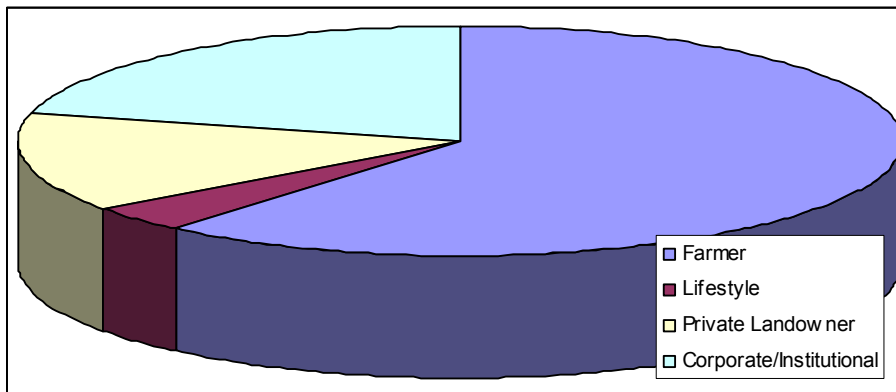
Aside from the specialist funds investors have been able to gain access to the sector by way of such traditional agricultural stocks as **Monsanto, Potash Corp, John Deere, Kubota, Mosaic, Syngenta, Agrium, FMC Corp** and others. Return on average equity across this group for 2009 was in excess of 21%.

“Farm To Fork Strategies Are Popular”

## Agri-Land Funds

Pure land funds, usually private equity funds, have also sprung up, typically with a regional bias. The focus of these funds is on undervalued land assets with high potential for capital gain and for yield and capital growth from enhanced management and development. Africa, the countries of the former Soviet Union and Latin America have been preferred investment regions for financial investors – but sovereign wealth funds have been active across the globe including Asia. The Gulf States and Saudi backed interests have been particularly active in Asia and in North Africa – especially in The Sudan.

Africa, Latin  
America And  
Former Soviet  
Countries Are  
Preferred



Corporate and Institutional buyers accounted for 21% of buyers of British farmland in 2009, and private landowners a further 14%. The bulk of buyers (61%) continue to be traditional farmers. Interestingly, while there is considerable variation year to year, the overall trend is indeterminate; the proportion of farmland purchased by traditional farmers is unchanged on the 1993 figures, and while corporate/institutional interest has grown, it is nevertheless well down on its peak levels in 2002 – 2004. (Statistics: Savills).

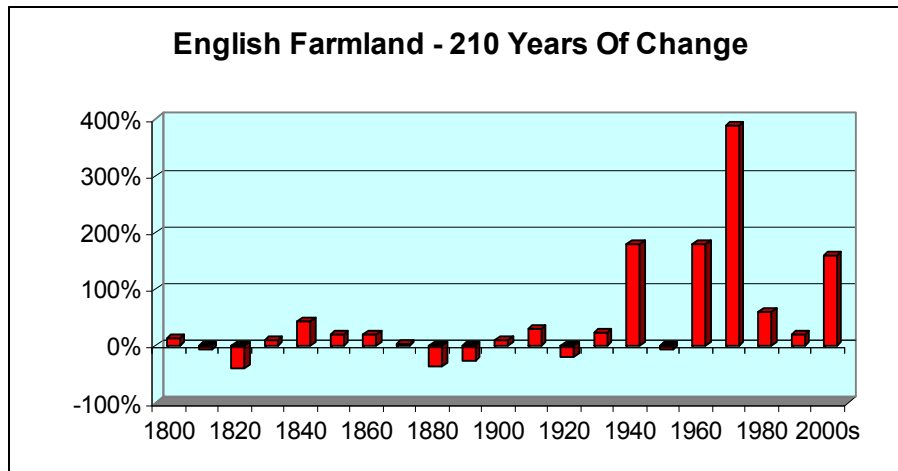
**Emergent Asset Management** based in London and South Africa proposes to invest in the region of \$4bn in a sub-Saharan arable land bank. The private equity fund has a “hands-on” management strategy for its acquired assets to drive productivity, yield and value, but at the heart of the strategy is the relative cheapness of this land which is reported to be available at less than \$200 per acre. Coupled with the vision of Africa as the new “bread basket” of the world, Emergent’s management has made headlines for describing Africa as “alpha country”; where reward outweighs risk, because the arable land is so cheap relative to the world average value of \$1,350 per acre.

The **African Agricultural Land Fund** is reported to be forecasting returns of 25% or better. Silverstreet Capital’s **Silverlands Private Equity Fund** is seeking \$300m also to build a sub-Saharan arable land bank, diversifying risk with a multi-country, multi-crop strategy. Like Emergent, Silverlands [also London based] is seeking to add value with investment and management resource.

In Dubai, **Pharos Miro** has raised \$350m for a new private equity fund to invest in land and operational efficiency gains with a focus on former Soviet countries and Africa. “We have identified a high quality pipeline of arable farm projects that meet our targeted returns of 25 percent annualised, including significant operating yield,” said Peter Halloran, the firm’s founder. “Given global concerns over food security and the impacts of climate change, arable farms represent a timely investment in today’s world.”

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Farmland values in Britain showed little change historically until the twin impact of Britain coming off the Gold Standard and better healthcare and lower emigration increased population levels (statistics: Savills)

Similarly there has been a focus on the “Black Earth” region of Russia and on the Ukraine by investment companies seeking to benefit from capital appreciation and raised operational efficiencies. **Black Earth Farm Ltd** and **Alpcot Agro** are Stockholm listed with capitalisations in the region of £200m and £76m respectively, while **Landkom plc** is London listed with a £35m market cap. These vehicles have sought to exploit the recent evolution of legal title to Russian land assets in the context of a global drive for expanded food production. The experience of these operators has confirmed the need for enhanced crop handling, storage facilities and transportation facilities to facilitate yield and value optimisation from these assets. Russia boasts some of the best soil on Earth, perhaps for this reason it is considered the home of soil science. The availability of Russian arable land at less than \$1500 per hectare [\$607 per acre], combined with its fertility has attracted funds looking for capital gain – but the experience so far has demonstrated the importance of the surrounding infrastructure to exploit the value of the land.

Russian Land Is Available At Less Than US\$1,500 per Hectare

Not surprisingly the focus of American private equity, hedge fund and other investors interest in agricultural land banks has centred on Latin America where all of **Galtere Asset Management**, **Pergam Finance**, **Origo Resources**, **Agrifirma Brazil** and **Calyx Agro** are investing. Latin American land assets are much closer to World averages at around \$1500 per acre, but benefit from lower risk profiles than many African investments or even those in Russia and other former Soviet states.

Where From Here?

The re-emergence of agriculture as an important sector of the global economy is strongly supported by demographic, economic and climatic trends. The first response from the investment community has been to create focused investment vehicles, to refine commodities based strategies, and to seek out undervalued asset plays. At Hardman & Co we believe that the next phase of the trend will be for investors to focus on the value adding scientific, infrastructure and management assets needed to generate the extra productivity required from the finite resource that is arable land and to ensure the sustainability of that productivity and of the diverse life forms that surround it. There will be an increasing focus on ethical investing in this sector both as a response to consumer concerns and political imperatives.

Political risk cuts both ways; investments in developing countries which disadvantage the local population have the potential to spark civil and political upheaval with consequent sequestration of assets or loss of power. Agencies like the World Bank and FAO, are showing increasing concern that agricultural land deals in developing countries should benefit both sides – an argument reminiscent of the debate around

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telecommunications privatisations during the 1990s.

For future publications we will focus on those companies and funds which have the capacity or exposure to drive / benefit from, agricultural productivity. **Genus plc**, **Monsanto** and **Syngenta** are already proven models; we will focus on soil science, water management, land management, plant & animal genetics, crop handling technologies and environmental management.

### Conclusion

It is being called the new land grab; the rush for agricultural gold. It is a familiar story, a mini tsunami of hot money chasing a suddenly fashionable asset class, and by one reading the dash into agriculture by hedge funds and private equity managers is just the latest discovery of a commodity related play where there is still value to be found. However we think that this trend has significantly more momentum behind it; it is not just an investment story, the re-discovery of the importance of agricultural assets reveals the very real issues facing mankind in relation to food security at a time of rapid population growth, rising affluence, urbanization, and climate change. These combined pressures on the world's productive agricultural land are exciting the interest of governments, international humanitarian agencies, scientists, global retailers like Walmart, Carrefour and Tesco, and of course investors. Agricultural land is proving a strong investment class on its own, but increasingly, we believe, investor attention will focus on the essential expertise in terms of science, equipment, and management skills that can make the land asset produce what humanity cannot live without – food. This will be the focus of our ongoing research service.

Land Deals In  
Developing  
Countries  
Should Benefit  
Both Sides

## Pooled Funds Available To The Professional Investment Community

### Equity Funds

- CF Eclectica, £112m fund run by Hugh Hendry, London. Investing in equities that benefit from demand & efficiency gains in production / processing / logistics agricultural commodities
- Alliance RCM Global Trends
- Barings Global Agriculture Fund, £60m – focused on agri demand driven equities

### Commodity Funds

- Castlestone Aliquot Agriculture – long only derivatives focused commodity play with no gearing
- Ceres Agriculture Fund Ltd - \$103m market capitalisation – derivatives focused commodity play
- Schroder Alternative Solutions Agriculture Fund – a futures based fund currently closed to new investment

### Mixed Strategy Funds

- Sarasin AgriSar - £68m – land, commodities & equities targetting demand growth & productivity gains

### African Land Funds

- African Agricultural Land Fund – Emergent Asset Management – Private Equity play on building land bank with cheap Sub-Saharan arable land with enhanced productivity kicker. Aiming for 25% or better returns on investment. Suggested \$4bn target funds.
- Silverstreet Capital - Silverlands Private Equity Fund of circa \$100m – land bank + productivity strategy with diverse country and crop spread to reduce risk
- Chayton Capital – land bank & productivity gains – initial focus on Zambia
- Pharos Miro AgriFund - \$350m private equity play on land bank & operational kicker Sudan & Egypt

### Russian Land Funds

- Black Earth Farming Ltd – Stockholm listed - £200m m.cap – focus Russian landbank + operational kicker
- Landkom PLC - LSE listed £33m m.cap Russian & Ukraine landbank + operational kicker
- Alpcot Agro – Stockholm listed £76m m.cap – Russia & CIS states landbank & operational kicker

### Latam Land Funds

- Galtère Global Farm Land Fund;
- Pergam Finance
- Origo Resources
- Agrifirma Brazil

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**Selected Quoted Agricultural Companies**

Company	Market Cap	Main Quote	Comments
Agalawatte Plantation	Rs869m	Colombo	Plantations in Sri Lanka
AGCO	US\$2.67bn	NYSE	Tractor manufacturer – owns Massey Ferguson
Agrium	US\$78.74bn	NYSE	Fertiliser manufacturer
Alamo	US\$274m	NYSE	Mowing and other agricultural equipment
Anglo Eastern Plantations	UK£190m	London Full List	Palm oil, Malaysia and Indonesia
Asian Citrus	UK£370m	London AIM, Hong Kong, US OTC	Orange plantations in China
Asian Plantations	UK£33m	Singapore	Palm oil plantations in Malaysia
Australian Agricultural Co	AUS\$391m	AUX Australia	Cattle producer, operating 21 stations in Queensland and Northern Territory
AWB	AUS\$820m	AUX Australia	Rural services. Markets 2.3m tonnes of grain in Australia, exports 35,000 dairy cattle, sources 560,000 tonnes of grain from Ukraine
Bogawantalawa Tea Estates	Rs2.1bn	Colombo	Tea plantations in Sri Lanka
Bombay Burmah Trading Corpn	Rs418Cr	Sensex India	Tea rubber and coffee in India, hydroculture in Malaysia and Singapore
Caterpillar	US\$37.9bn	NYSE	Agricultural machinery
Clean Energy Brazil	UK£21m	London AIM	Ethanol and sugar in Brazil
D1 Oils	UK£6m	London AIM	Jatropha farming
Deere and Company	US\$24.4bn	NYSE	Agricultural machinery
Diana Tea	Rs32Cr	Sensex India	Tea plantations
Du Pont	US\$32.5bn	NYSE	Agrochemicals
Elpitiya Plantations	Rs1.2bn	Colombo	Tea rubber and palm oil plantations, Sri Lanka
Equatorial Palm Oil	UK£8m	London AIM	Palm oil in Liberia
FMC Corp	US\$4.3bn	NYSE	Insecticides and agrochemicals
Futuragene	UK£50m	London AIM	Agricultural biotechnology patents and IP
Genus	£418m	London Full List	Animal breeding
Goodricke	Rs250Cr	Sensex India	Plantations, India
Harrisons Malayalam	207Cr	Sensex India	India's largest producer of rubber and pepper and South India's largest producer of tea
IOI Corpn Bhd	MYR31bn	Kuala Lumpur	Leading Malaysian palm oil producer with with MYR1.6bn fund for palm oil acquisitions in Indonesia
Kubota Corp.	US\$10.1bn	NYSE	Japanese tractor manufacturer

**Selected Quoted Agricultural Companies *continued***

Company	Market Cap	Main Quote	Comments
Landkom	UK£33m	London AIM	Farming in Ukraine
M.P. Evans	UK£172m	London Full List	Palm oil in Indonesia and Malaysia, beef cattle in Australia
McLeod Russel	Rs2,044Cr	Sensex India	Tea and coffee plantations in India
Monsanto	US\$29.8bn	NYSE	The leading plant science co. and agrochemical manufacturer – makes 'Roundup'
Narborough Plantations	UK£7m	London Full List	Palm oil, Malaysia
New Britain Palm Oil	UK£750m	London Full List	Palm Oil in Papua New Guinea
Potash Corp of Saskatchewan	US\$28.6bn	NYSE	Fertiliser
R.E.A. Holdings	UK£422m	London Full List	Palm Oil in East Kalimantan, Indonesia. Also some coal
REI Agro	Rs1,326Cr	Sensex India	Plantations and food producer
Sime Darby	MRY46n	Malaysia	Malaysian plantations, primarily palm oil, with property and commercial interests. Has deciphered and sequenced the oil palm genome.
Sinclair, William	UK£17m	London	Horticultural products, including environmentally friendly peat substitutes. Owns 3,300 acres of wetlands and receives compensation payments for phased withdrawal from peat harvesting.
Sunrise Biotech	UK£22.3m	London PLUS	Mulberry plantations in China
Swire Group	HK\$69bn	Hong Kong	Owns Finlays, the major plantation organisation
Syngenta	EUR16.9bn	Frankfurt	A leader in plant science inc. agrochemicals
Tata Tea	Rs6,500Cr	Sensex India	Tea plantations in India
The Mosaic Co	US\$20.3bn	NYSE	World's leading phosphate and potash producer

**Doug Hawkins**

Doug Hawkins co-ordinates & provides agriculture sector research for Hardman & Co.

Alongside a career in investment research, Doug has been involved in agriculture throughout his life, first in New Zealand's dairy sector and for the past 22 years in England where he farms beef cattle under an organic production system.

A former Extel ranked analyst, Doug's career in investment research has covered Defence Electronics, Telecommunications, and global Logistics, and Head of International Equities Research for Nomura International in London.

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**For enquiries about future research coverage and company-specific research notes, please contact Doug Hawkins at [research@hardmanandco.com](mailto:research@hardmanandco.com)**

#### Hardman & Co

4-5 Castle Court  
London  
EC3V 9DL  
United Kingdom

Tel: +44(0)20 7929 3399  
Fax: +44(0)20 7929 3377

[www.hardmanandco.com](http://www.hardmanandco.com)

