Table 6
An error matrix shows the agreement and disagreement between reference data (Fazenda Santa Lordes farm history) and the 90% wavelet-detected cropping patterns (*A*). The producer's accuracy and user's accuracy (B) are shown for each land-use classification

A		Reference (farm history)			
		Not RC	Single	Double	Total
Wavelet-detected	Not RC	71	4	0	75
	Single	0	18	2	20
	Double	0	0	5	5
	Total	71	22	7	100

B		Producer's accuracy	User's accuracy
Wavelet-detected	Not RC	100.0%	94.7%
	Single	81.8%	90.0%
	Double	71.4%	100.0%

overall accuracy of 88.5% for the entire study region and the corresponding K_{hat} value is 92.1% (Table 5).

The wavelet transform captures land cover and land use at a site on Fazenda Santa Lordes where *cerrado* was converted to row crops in 2003, with the first crop grown in the 2003–2004 season (Fig. 8). From farm history, we know the first year of cropping was a single soybean crop in 2003–2004 and a double crop in 2004–2005. Statistical error analysis for wavelet-derived classes compared with land-use records for Fazenda Santa Lordes shows high accuracy (Table 6). Producer's accuracy is high (low omission errors) the classifications of not row crops (100.0%) and single crops (81.8%) but low (higher omission errors) for double crops (71.4%). User's accuracy is high (low commission error) for all classes: not row crops is 94.7%; single crop accuracy is 90.0% and double crops accuracy is 100.0% (greater than 99.99%). The commission and omission errors may not be representative of the entire scene as there were only 5 pixels in this category. The K_{hat} value is 85.7% and the overall accuracy is 94% for land-use classifications on the fazenda (Table 5).

Table 7
The cropping patterns for each year are presented here

Area (km^2)		Area (km^2) by cropping pattern	
		Single	Double
Year	2001	3124	3131
	2002	3251	3548
	2003	4063	3480
	2004	2790	5742
	2005	3643	5892

These are the results from the 90% power wavelet-smoothed time series using a 0.4 EVI crop detection threshold, as it performs with the lowest misclassifications (Table 5). The intensification of double crops after 2003 is particularly notable.

Single and double cropping patterns show a dynamic relationship (Fig. 9). Both cropping patterns have a net increase (Table 7). Single crops increase from 3124 to 3643 km^2 (a 14% increase) and double crops increase from 2283 to 4443 km^2 (a 49% increase) during the study period (Fig. 9). We see a decrease in single crops between the 2003 and 2004 growing years while double crops continue to increase. The increase in single crops from 2002 to 2003 may represent the extensification of croplands into areas that were previously native vegetation. After the first growing year with a single crop many of these areas may have been converted to a double crop, creating a dynamic relationship between the cropping patterns. Agricultural intensification, or increase in the number of crops grown per area, follows a pattern similar to agricultural extensification,

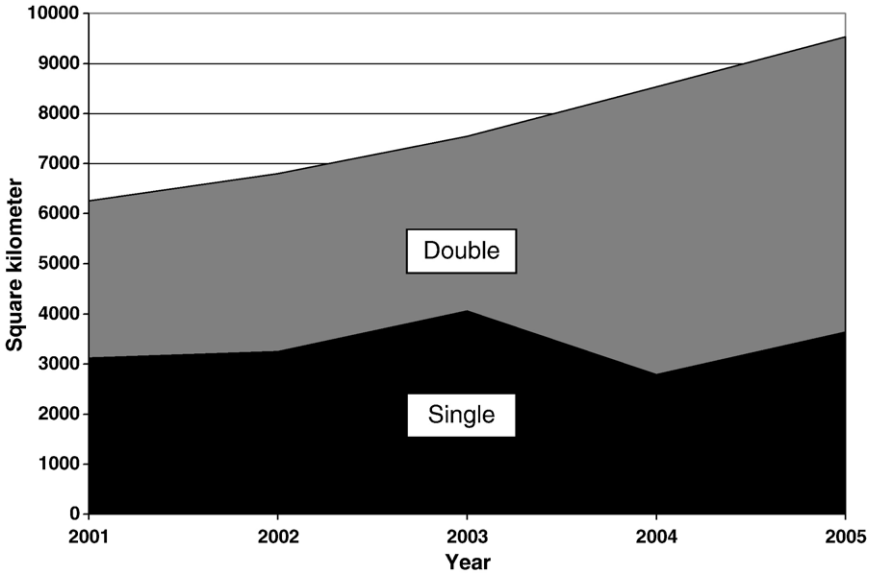

Fig. 9. The 90% power wavelet with a 0.4 EVI threshold for detecting maxima preformed with this lowest misclassifications (Table 2). These results were used to track the area in single and double cropping patterns by year. The area in croplands increases through the time series. The intensification of double crops after 2003 is particularly notable.